The first phase of the Ashley Cooper Stormwater Education Consortium (ACSEC) outreach program can be generally characterized as foundation building. Although the development of the consortium began several years ago, the official joint resolution signing ceremony on July 29th, 2008, marked an official beginning and public introduction to the regional effort. The first ACSEC education plan was launched in the fall and outlined an education strategy (target audience-target pollutant focus) as well as short-term (first year) and long-term overall goals. The two primary short-term goals of year one were to 1) characterize the social and physical geography of the region and 2) support, implement, and expand existing water resource education programs of the partner organizations.

The first goal and objectives have been met in terms of data gathering, and the results are expected to be finished in the fall of 2009. Two surveys were conducted in the region—a phone survey and a field-based written survey. Clemson University conducted the phone survey in July 2009, which included over 400 respondents randomly selected in the Tri-County area. The field survey was conducted at public events, such as the Coastal Carolina Fair and Earth Day Festival, and included over 300 respondents. Both surveys can be viewed in Appendix A, including summary statistics of the field survey. A student from the College of Charleston Master’s of Environmental Studies program began an internship in February 2009 with the ACSEC to develop a regional characterization. The report, scheduled for completion in October 2009, will incorporate the survey results. The internship project was designed to utilize a Geographic Information System (GIS) platform for characterizing the region for future education program guidance.

The bulk of this report illustrates the achievement of the second goal, which is a result of the successes of the partners’ programs and the consortium model. The ACSEC is fortunate to have a dedicated group of community and education partners working together to achieve the common goal of improving water quality in South Carolina through public education and involvement. Many goals and objectives were realized in the first year, and valuable lessons were learned. Although building an effective outreach campaign is a challenging enterprise, a sound cornerstone has been emplaced thanks to the collaborative efforts of all partners.
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The majority of designated SMS4 communities in the Charleston-North Charleston urbanized area, representing approximately 90% of the population, have committed to the ACSEC regional collaboration. These communities are represented by a dedicated group of public servants who have been engaged for several years in building this partnership.

**Local SMS4 Consortium Representatives**

<table>
<thead>
<tr>
<th>SMS4</th>
<th>Consortium Representatives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Berkeley County</td>
<td>Frank Carson, Clint Busby, Sonia Shahnaj</td>
</tr>
<tr>
<td>Charleston County</td>
<td>Charles Jarman, Nilesh Desai, Stuart Ruelle</td>
</tr>
<tr>
<td>Dorchester County</td>
<td>Kelly Billbrough</td>
</tr>
<tr>
<td>City of Charleston</td>
<td>Fowler Del Porto, Laura Cabiness, Steve Kirk</td>
</tr>
<tr>
<td>City of Folly Beach</td>
<td>Steve Robinson</td>
</tr>
<tr>
<td></td>
<td>Inter-Governmental Agreement (IGA) with Charleston County</td>
</tr>
<tr>
<td>City of Hanahan</td>
<td>Marie Fredrickson</td>
</tr>
<tr>
<td>City of Isle of Palms</td>
<td>Represented by Charleston County via IGA</td>
</tr>
<tr>
<td>Town of Lincolnville</td>
<td>Represented by Charleston County via IGA</td>
</tr>
<tr>
<td>City of North Charleston</td>
<td>Mike Dalrymple, John Peckham</td>
</tr>
<tr>
<td>Town of Sullivan’s Island</td>
<td>Represented by Charleston County via IGA</td>
</tr>
<tr>
<td>Town of Summerville</td>
<td>Russ Cornette</td>
</tr>
</tbody>
</table>
Partner collaboration is key in developing and delivering a successful watershed-scale outreach program that reaches a range of diverse audiences, and the ACSEC is fortunate to have a variety of organizations in the tri-county region that have joined the team. Education partners include universities, government agencies, and non-profits, and each brings unique expertise, resources, ideas and programs to the ACSEC. The ACSEC is fostering communication among organizations, and programs are being created or enhanced through this cooperative effort. Since the press conference in July 2008, the list of organizations partnering with the ACSEC has grown, and hopefully will continue to expand in the future.

**Education Service Partners**

- Clemson University Cooperative Extension Service—Carolina Clear Program
- SC Sea Grant Consortium and Extension Program
- College of Charleston—Master’s of Environmental Studies Program
- SC Department of Natural Resources (SC DNR)
  - SC Oyster Restoration and Enhancement Program (SCORE)
  - SC Coastal Discovery Program
- SC DNR-ACE Basin National Estuarine Research Reserve-Coastal Training Program
- SC DNR-Soil and Water Conservation Districts
- Charleston County Project Impact—CARE program
- Charleston County Solid Waste and Recycling
- Berkeley County Solid Waste and Recycling
- Dorchester County Solid Waste and Recycling
- Lowcountry Earth Force
- SC Maritime Foundation—Spirit of South Carolina
- Michaux Conservancy
- SC Marine Association
- Charleston Waterkeeper
- Sustainability Institute

---

**Educational Partners**

FY 08-09 Annual Report
Ashley Cooper Stormwater Education Consortium
ACSEC Mission:

*Improve water quality within the Ashley and Cooper River basins by providing educational opportunities on stormwater impacts and our community roles in supporting healthy, fishable, and swimmable waterways*

Consortium Goals:

- Develop and implement an education plan that defines a [cohesive education strategy](#) which outlines target audiences and associated target pollutants relevant to the region using a prioritized approach
- Facilitate [compliance](#) with existing and future educational regulatory requirements by capitalizing on local resources and service providers
- Foster [citizen involvement](#) in stormwater management through Ashley Cooper Consortium education and participation programs
- Encourage [behavioral change](#) towards environmental quality improvement through stormwater education
- Utilize [mainstream and developing technologies and tools](#) to maximize citizen exposure to ACSEC stormwater goal and objectives
- Create an [interactive reporting process](#) to facilitate information exchange and dissemination among member entities

---

*In the end, we will conserve only what we love, we love only what we understand, and we will understand only what we are taught*

-Baba Dioum
The 2008-09 ACSEC Education Plan outlined the following overall goals and objectives for year 1:

GOAL 1: Research and evaluate the current status of the region—specifically the audiences, geography, and pollutants, to create baseline data and guide future programming.

OBJECTIVES:
1. Conduct a needs assessment phone survey in early 2009 that collects information from the region with respect to audience behavior, attitudes, and perceptions. Results of the survey will be collected in a manner so that results are statistically relevant and can be used for future comparisons.
2. In early 2009, hire an intern from the College of Charleston, Masters of Environmental Studies (MES) Program [ACSEC partner], to characterize the geography and target audience demographics of the region-culminating with a report for the ACSEC.
3. Collect and analyze data from the Carolina Clear and ACSEC website, including data from Google Analytics and online surveying as well as any event-specific program surveying.

GOAL 2: Support, implement, and expand existing water resource education programs of the member organizations to increase awareness about stormwater runoff pollution, individual actions that contribute to the issue and alternative behavior recommendations.

OBJECTIVES:
1. Determine existing education providers in the region that currently have or can supplement stormwater and/or water quality elements into their programs and are willing to partner with the ACSEC
2. Coordinate with education and community partners to deliver and/or enhance existing water resource programs (i.e. technical, financial and media support)
3. Develop and implement a mass media campaign in the region that utilizes television, radio, and print advertising
4. Facilitate communication among consortium members by conducting bi-annual meetings and internal trainings, utilizing the listserv, and developing ACSEC website
5. Define target audiences and potential programs that no organization or program currently addresses
This first annual report is utilizing the same general format as the other regional stormwater consortia in South Carolina. The goal of the report is to provide a detailed outline of the activities that took place in the region over the last year. Although this report is entitled “year one,” reporting for the first cycle represents an 18-month period beginning January 2008 to June 2009 to capture education efforts that were underway prior to the first reporting cycle. Future annual reports will represent a 12-month cycle (July-June). The report is organized by outreach methods (i.e. media, workshops, public events, etc.). Each activity is briefly described, along with lead provider, supporting partners, date, number of impacts, and target audiences.

Clemson University-Carolina Clear program developed an online database in early 09 to record detailed information on activities being conducted in the region. The online database also provides a convenient mechanism for inputting information from a variety of partners. The data collected in the online database includes information on target audiences, pollutants, activity type, lead service providers, supporting partners, number of impacts, location, and several others categories. This detailed information is a substantial asset to the consortium, but represents more than what can be conveniently expressed in an annual report. The activities in the report are listed in a table format:

<table>
<thead>
<tr>
<th>Lead Provider</th>
<th>Supporting Partner(s)</th>
<th>Activity</th>
<th>Date</th>
<th>Number of Impacts</th>
<th>Target Audience(s)</th>
</tr>
</thead>
</table>

**Target Audiences Abbreviations**

- GP: General Public
- R: Residential-Homeowners and Renters
- YT: K12 Youth and Teachers
- HE: Higher Education
- T: Technical-Engineers, Contractors, Developers, Staff
- EA: Elected and Appointed Officials and High Level Staff
- B: Boat Owners, Operators, and Marinas
- P: Pet Owners
- PO: Pond Owners and Managers
- C: Commercial

However far the stream flows, it never forgets its source.

-Proverb of the Yoruba People
County and city governments in the Charleston-North Charleston urbanized area that joined the consortium each individually signed a resolution to adopt a regional, watershed-scale stormwater education strategy, with efforts to be overseen by the ACSEC and their respective municipal or county representatives. The resolution passed unanimously in each of the eleven county or city councils, illustrating the commitment and common ground shared by all in the effort to protect and improve water quality and the recognition that education is a vital component to achieve that goal.

On the morning of July 29th, 2008, mayors and council chairpersons from most of the consortium communities, along with community and education partner organization representatives, gathered at the City Gallery in downtown Charleston to sign the joint resolution. Community leaders that could not attend the event signed the resolution at a later date. Appendix B contains a copy of the media release. The event was covered by multiple media sources, including local ABC and CBS news affiliates, the Post and Courier and local papers, radio, magazines, and multiple online outlets. The event marked an official beginning of the ACSEC, and was concluded by a fateful rain shower.
A particular focus the first year was providing overall awareness of the new regional partnership to educate the public about stormwater runoff pollution, as well as to highlight and expand existing and new programs. Although member organizations have a well-established identity in the region, the collaborative efforts of the consortium are new, and the public has not been familiarized with the ACSEC. One of the first strategies to provide public awareness of stormwater runoff pollution and the regional partnership was to create a logo for the consortium. The new logo, which represents a balanced relationship between land and water, was unveiled at the resolution signing ceremony in July 2008 and is being utilized in a variety of mediums and events to provide a unified identity to the public. The public education segment of this document is organized by outreach methods, with major headings including: Media (Internet, TV, Radio, Billboards), Publications, Direct Contacts, Public Events (Fairs, Festivals, etc.), Conferences, Presentations, Workshops, Meetings, and Training/Certification programs.

**INTERNET**

<table>
<thead>
<tr>
<th>Lead Provider</th>
<th>Supporting Partner (s)</th>
<th>Activity</th>
<th>Date</th>
<th>Number of Impacts</th>
<th>Target Audience (s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clemson</td>
<td>ALL</td>
<td>Develop website for ACSEC</td>
<td>September 08</td>
<td>4,288</td>
<td>GP</td>
</tr>
</tbody>
</table>

**WEBSITE:** The Carolina Clear website was rebuilt in the Fall of 2008 and serves as a statewide educational resource and hub for the ACSEC website. The ACSEC website has been created and is currently under renovation to expand features. The viewership of the website is monitored by Google Analytics. From Sept. 1, 2008, to June 30th, 2009, there were 4,288 visitors to the Carolina Clear website, and 597 came from the tri-county area (14%) with 385 hits to the ACSEC home page. Community and education partner websites will be interlinked to form a network of education resources and programs available to the public. Developing and increasing internet presence via host and social networking sites is a long-term goal of the ACSEC as digital information is an increasingly significant mechanism for information exchange.
# Public Education

## TELEVISION

<table>
<thead>
<tr>
<th>Lead Provider</th>
<th>Supporting Partner(s)</th>
<th>Activity</th>
<th>Date</th>
<th>Number of Impacts</th>
<th>Target Audience(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clemson</td>
<td>ETV</td>
<td>TELEVISION: <em>Tide of Change</em>, Award-winning 1-hr documentary that explores the causes and consequences of massive development—particularly on the coasts and waterways and stormwater impacts.</td>
<td>March 08</td>
<td>Thousands statewide, data unavailable for Tri-county</td>
<td>GP</td>
</tr>
<tr>
<td>Clemson</td>
<td>All Partners</td>
<td>TELEVISION: The July 29th resolution signing press conference was covered by local ABC and CBS affiliates and aired on evening broadcasts</td>
<td>July 08</td>
<td>200,000+</td>
<td>GP</td>
</tr>
<tr>
<td>Clemson</td>
<td></td>
<td>TELEVISION: Carolina Clear-ACSEC PSAs. See Mass Media highlight for more information</td>
<td>December 2008-present</td>
<td>*TBD-Unknown at time of report</td>
<td>GP, R, P, B</td>
</tr>
</tbody>
</table>

*At the conclusion of the rotations this fall, viewership numbers and rotation details will be made available by the stations.*

<table>
<thead>
<tr>
<th>Lead Provider</th>
<th>Supporting Partner(s)</th>
<th>Activity</th>
<th>Date</th>
<th>Number of Impacts</th>
<th>Target Audience(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charleston Co.</td>
<td>Clemson Ext, SC Native Plant Society, CCPRC, SC DHEC</td>
<td>TELEVISION: <em>Living Green</em>, 30 min show aired 4 times on local FOX affiliate. The show highlighted the Carolina Yard Outdoor Classroom and CYN program at the Ladson Exchange Park and environmentally friendly home landscaping techniques</td>
<td>Jan-Feb 09</td>
<td>218,000</td>
<td>GP, R</td>
</tr>
<tr>
<td>Clemson</td>
<td>ETV</td>
<td>TELEVISION: <em>Making It Grow</em>, Weekly hour-long award-winning program providing home gardening answers and recent features on rain gardening and low impact development</td>
<td>Continuous</td>
<td>Thousands weekly statewide</td>
<td>GP, R</td>
</tr>
</tbody>
</table>
Year 1 Highlights

ACSEC-CC Mass Media Campaign

The mass media campaign of 2008-2009 was carried out in three mediums – television, radio, and billboards, all utilizing public service announcement space. The focus of this first mass media campaign is simple. The 30-second commercial for television and radio have the same message – there is a limited amount of clean, fresh water and actions that people take on a daily basis can affect the quality of that water supply. The PSA specifically identifies pollutant sources from over-fertilizing lawns, hazardous household materials, oils washing off driveways and parking lots, and pet waste—and the need to manage these potential pollutants. The commercial encourages the viewer to remember that “we all live downstream.”

The 30-second television commercial was distributed to WCSC (Channel 9), WCIV (Channel 8), WTAT (Channel 4), and WCBD (Channel 2) in December 2008 and forwarded to Lowcountry CW in March 2009. All stations have been asked to keep this public service announcement in rotation through the fall of 2009 due to the seasonal importance of the issues addressed in the commercial. Similarly, the commercial for radio was distributed to the following local stations, and the request has been made that the commercial maintain in rotation through the end of August 2009:

FM-94.3, 95.1, 100.5, 101.7, 103.5, 104.5, 105.5; AM-1250

The goldfish theme was repeated in the billboard graphic, which was placed at various locations around the area (see map). This far into the billboard campaign, it can be estimated that 161,214 people have viewed the billboards. The four billboards were hung in February, with one billboard rotating to a new location in June. The billboards will remain in place until October 2009.

More information, to play the commercial, and see a map of the billboard locations please go online at www.clemson.edu/carolinaclear.
The five total locations are as follows:

I-526 to Charleston, before the Ashley River (23,236 daily views; relocated in June);
I-26, west of 17, south side in North Charleston (44,283 daily views);
I-26, east of Austin Avenue, north side in North Charleston (44,283 daily views);
Ashley Phosphate near I-26, North Charleston (37,266 daily views; new location in June);
US 17, 1 mile south of SR 162 in Ravenel (12,146 daily views).

*At the conclusion of the rotations this fall, viewership numbers and rotation details will be made available by the stations.*

Your Day is a radio magazine produced as a public service of Clemson University Radio Productions, featuring a wide range of topics of interest to South Carolina residents and visitors alike. Each Monday through Thursday at noon, Your Day provides programming in the NPR tradition, but with a South Carolina flavor.

The five total locations are as follows:

I-526 to Charleston, before the Ashley River (23,236 daily views; relocated in June);
I-26, west of 17, south side in North Charleston (44,283 daily views);
I-26, east of Austin Avenue, north side in North Charleston (44,283 daily views);
Ashley Phosphate near I-26, North Charleston (37,266 daily views; new location in June);
US 17, 1 mile south of SR 162 in Ravenel (12,146 daily views).
PUBLIC EDUCATION

Print media was utilized in a variety of formats to reach a wide range of audiences, including articles in newspapers, newsletters and magazines; brochures; manuals; and advertisements. Complete articles and advertisements can be viewed in Appendix

ARTICLES

<table>
<thead>
<tr>
<th>Lead Provider</th>
<th>Supporting Partner(s)</th>
<th>Activity</th>
<th>Date</th>
<th>Number of Impacts</th>
<th>Target Audience(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clemson</td>
<td></td>
<td>ARTICLES—NEWSPAPER: The ACSEC resolution signing press conference was covered by local and regional papers—including the Post and Courier (P&amp;C), The Summerville Journal Scene, and the Charleston Regional Business Journal</td>
<td>July 08</td>
<td>90,000 (P&amp;C)</td>
<td>GP</td>
</tr>
<tr>
<td>Clemson</td>
<td>Lowcountry Earth Force (LEF)</td>
<td>ARTICLES—NEWSPAPER: Rain Garden Installation by LEF youth volunteers at Carolina Yard Outdoor Classroom in Ladson, SC for Coastal Carolina Fair exhibit in P&amp;C</td>
<td>Oct 08</td>
<td>90,000</td>
<td>GP</td>
</tr>
<tr>
<td>Charleston Co.-Folly Beach</td>
<td>Clemson</td>
<td>ARTICLES—NEWSPAPER: Water Quality Vault Installation on Folly Beach. Cover article of The Journal in Post and Courier.</td>
<td>April 09</td>
<td>50,000</td>
<td>GP</td>
</tr>
<tr>
<td>SC DNR-Soil and Water Conservation Districts (S&amp;W)</td>
<td>Clemson</td>
<td>ARTICLES—NEWSLETTERS: Conservation Corner, Article highlighting partnership and goals</td>
<td>Summer 08</td>
<td>450 print, available online</td>
<td>GP, EA, R</td>
</tr>
<tr>
<td>College of Charleston</td>
<td>Clemson</td>
<td>ARTICLES—NEWSLETTERS: The MES News, CofC Master's of Environmental Studies Program quarterly, Cover Article highlighting partnership and goals</td>
<td>Summer 08</td>
<td>1,500 print, 500 online</td>
<td>GP, HE</td>
</tr>
</tbody>
</table>
## Public Education

### PUBLICATIONS

#### ARTICLES Continued

<table>
<thead>
<tr>
<th>Lead Provider</th>
<th>Supporting Partner(s)</th>
<th>Activity</th>
<th>Date</th>
<th>Number of Impacts</th>
<th>Target Audience(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LEF</td>
<td>Clemson</td>
<td>ARTICLES—NEWSLETTERS: Article highlighting partnership and GREEN (Global Rivers Environmental Education Network) program support <strong>Also published in Earthforce National Newsletter</strong></td>
<td>Spring 09</td>
<td>1,500 print, 4,000 emailed</td>
<td>GP, YT</td>
</tr>
<tr>
<td>SC Marine Educators Association (SCMEA)</td>
<td>Clemson</td>
<td>ARTICLES—NEWSLETTERS: <em>Sea scripts</em>, Article on stormwater runoff issues, consortia in SC, and youth education opportunities</td>
<td>Spring 09</td>
<td>200 mailed, available online</td>
<td>YT, HE</td>
</tr>
<tr>
<td>Sea Grant</td>
<td></td>
<td>ARTICLES—MAGAZINE: <em>Coastal Heritage</em> quarterly, “Slowing Stormwater” main feature, 1,100 circulation in tri-county, also downloaded online</td>
<td>Summer 08</td>
<td>1,100</td>
<td>GP, EA, T, R</td>
</tr>
<tr>
<td>MASC</td>
<td>Clemson</td>
<td>ARTICLES—MAGAZINE: <em>UPTOWN</em>, Municipal Association of South Carolina (MASC), “Preventing Stormwater Pollution” Article on stormwater pollution and regional consortium efforts</td>
<td>April 09</td>
<td>5,500</td>
<td>GP, EA, T, R</td>
</tr>
</tbody>
</table>
## Public Education

### PUBLICATIONS

#### Advertisements

<table>
<thead>
<tr>
<th>Lead Provider</th>
<th>Supporting Partner(s)</th>
<th>Activity</th>
<th>Date</th>
<th>Number of Impacts</th>
<th>Target Audience (s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCMF-Spirit of SC</td>
<td>Clemson</td>
<td>ADVERTISEMENT-- <em>Voyage</em>, a monthly publication of the SC Maritime Foundation. Quarter page ad: “It takes a village...to improve water quality” (Appendix C)</td>
<td>May 09</td>
<td>20,000</td>
<td>GP, B</td>
</tr>
</tbody>
</table>

#### Brochures, Booklets, Manuals

<table>
<thead>
<tr>
<th>Lead Provider</th>
<th>Supporting Partner(s)</th>
<th>Activity</th>
<th>Date</th>
<th>Number of Impacts</th>
<th>Target Audience (s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sea Grant</td>
<td>USC, Noisette Co., City of N. Charleston</td>
<td>BROCHURE: “Polluted Stormwater” Describes NPS, highlights LID techniques, provides specific tips for individuals and homeowners and HOAs to reduce pollution. Part of a series of information brochures.</td>
<td>Continuous</td>
<td>450</td>
<td>GP, T, EA, R</td>
</tr>
<tr>
<td>Charleston Co.</td>
<td></td>
<td>BROCHURE: EPA produced “After the Storm”. Given out at Buck Hall Community Association</td>
<td>June 09</td>
<td>15</td>
<td>R</td>
</tr>
<tr>
<td>SC Sea Grant</td>
<td>NOAA HML, Clemson-Strom Thurman Inst.</td>
<td>BOOKLET: “Tidal Creek Habitats: Sentinels of Coastal Health” Distributed at multiple venues.</td>
<td>Continuous</td>
<td>1000</td>
<td>GP, EA, T</td>
</tr>
<tr>
<td>Clemson</td>
<td>SC DHEC-OCRM</td>
<td>BOOKLET: Carolina Yards and Neighborhood (CYN) Yardstick Workbook.</td>
<td>Continuous</td>
<td>400</td>
<td>GP, R, PO</td>
</tr>
</tbody>
</table>

The Carolina Yardstick Workbook provides a guide to the nine principles of the Carolina Yard and Neighborhood (CYN) program. This statewide program provides guidance on environmentally friendly home landscaping to minimize impact on SC’s natural resources. This program was a particular target of the Carolina Clear program for expansion in the region (see CYN highlight). Over 400 workbooks were distributed by Clemson Master Gardeners and other ACSEC education partners in FY ‘08-'09 at public events as a reward for completing the field survey, as well as to homeowners and others during workshops and presentations.
Clemson’s Carolina Clear program developed a rain garden manual to meet the growing public demand and outreach needs of the state. Rain gardens have been identified as one of the most effective homeowner practices to manage stormwater quantity and quality on site. This manual provides specific instruction on installation, including providing an extensive plant list for each zone in SC. The ACSEC is promoting the technique through rain garden articles and workshops, where the new manual was distributed. The manual was also made available for free download on the Carolina Clear website.

**Direct Contacts**

**In-Person, Phone, Email**

<table>
<thead>
<tr>
<th>Lead Provider</th>
<th>Supporting Partner (s)</th>
<th>Activity</th>
<th>Date</th>
<th>Number of Impacts</th>
<th>Target Audience (s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clemson</td>
<td>In-Person, Phone, Email: Clemson Extension Agents and the Master Gardeners answered questions relating to a variety of home landscaping issues at public events and Extension offices</td>
<td>Continuous</td>
<td>TBD, 100’s annually</td>
<td>GP, R</td>
<td></td>
</tr>
<tr>
<td>Clemson</td>
<td>In-Person, Phone, Email: Berkeley, Charleston, and Dorchester Co. Extension Agents answered questions and visited ponds, providing management recommendations for a variety of issues, including aquatic weeds, herbicides, and vegetative buffers</td>
<td>Continuous</td>
<td>150+</td>
<td>PO</td>
<td></td>
</tr>
</tbody>
</table>
Clemson’s Carolina Yards and Neighborhoods (CYN) program was targeted for expansion in the region in the first year. The program was established in Florida and was adapted for South Carolina several years ago with support from SC DHEC. CYN is designed to educate residential audiences on how to create an attractive and healthy home landscape that works with South Carolina’s environment, not against it. The program is based on 9 principals and a central theme is water resource conservation and preservation. Homeowners achieve “inches” as they adopt various strategies in their home landscape, such as proper mowing heights, composting, stormwater management, pest management, and proper plant selection and location.

The CYN program is being implemented in a variety of outreach methods, including distribution of print materials, website, presentations, demonstrations, and exhibits. Clemson’s Master Gardeners are pivotal in delivering the program in SC, and more than 30 received training in 2008-09 in the Tri-County region. Through a partnership between the Master Gardeners, Carolina Clear Program and the Charleston Exchange Club, an outdoor Carolina Yard “living classroom” exhibit was created at the Ladson Exchange Park. The living classroom was finished in time for the 2008 Coastal Carolina Fair (CCF), which was attended by more than 220,000 people, and illustrates the nine principles of the program. Master Gardeners volunteered 100’s of hours in building the Carolina Yard, and answered questions and distributed educational materials during CCF. The Carolina Yard serves as a permanent exhibit for the CCF, as well as for demonstrations, trainings, workshops, and presentations for years to come. The yard has already hosted two television programs (Charleston Co. CARE-Living Green, and Gardening at Magnolia), presentations, and two Master Gardener trainings.
## PUBLIC EVENTS

### Fairs and Festivals

<table>
<thead>
<tr>
<th>Lead Provider</th>
<th>Supporting Partner(s)</th>
<th>Activity</th>
<th>Date</th>
<th>Number of Impacts</th>
<th>Target Audience(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LEF</td>
<td>Multiple</td>
<td>EXHIBITS: Charleston Green Fair, Inaugural Event, Downtown Charleston, Marion Square-Distributed Education Materials, Rain Barrel Demo</td>
<td>September 28, 2008</td>
<td>5,000</td>
<td>GP, R</td>
</tr>
<tr>
<td>Clemson</td>
<td>Exchange Club, LEF</td>
<td>EXHIBITS: Coastal Carolina Fair, Ladson, SC. Carolina Yard Living Classroom. Backyard provides display of the 9 principles of the CYN program. See highlights.</td>
<td>October 30- November 8, 2008</td>
<td>220,000</td>
<td>GP, R</td>
</tr>
<tr>
<td>Charleston Co.-Folly Beach</td>
<td>Clemson</td>
<td>EXHIBITS: Folly Beach City Hall Day, Charleston County Public Works Stormwater Division and ACSEC displayed education program and materials</td>
<td>November 1, 2008</td>
<td>100</td>
<td>GP, R</td>
</tr>
<tr>
<td>College of Charleston</td>
<td>Clemson</td>
<td>EXHIBITS: CofC Green Fair, Displayed and demonstrated how to build a rain barrel</td>
<td>January 29, 2009</td>
<td>1000</td>
<td>GP, HE</td>
</tr>
<tr>
<td>College of Charleston</td>
<td>Clemson</td>
<td>EXHIBITS: Homebuilders Home and Outdoor Living Expo, display and educational materials distributed, including Coast a Syst and CYN workbooks</td>
<td>February 20-22, 2009</td>
<td>100,000</td>
<td>GP, R, T, C</td>
</tr>
<tr>
<td>College of Charleston</td>
<td>Clemson</td>
<td>EXHIBITS: 8K for H2O, The CofC MES student association hosts an annual run on Folly Beach to raise awareness and funds for a non-profit. A display and educational materials were distributed.</td>
<td>February 21, 2009</td>
<td>100</td>
<td>GP</td>
</tr>
</tbody>
</table>
**PUBLIC EVENTS**

**Fairs and Festivals, Continued**

<table>
<thead>
<tr>
<th>Lead Provider</th>
<th>Supporting Partner(s)</th>
<th>Activity</th>
<th>Date</th>
<th>Number of Impacts</th>
<th>Target Audience(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charleston Co. CARE</td>
<td></td>
<td>EXHIBITS: CERT Ready Lowcountry at N Charleston Fire Museum. Project Impact display and distributed education materials</td>
<td>February 21, 2009</td>
<td>85</td>
<td>GP</td>
</tr>
<tr>
<td>Charleston County SW&amp;R</td>
<td>Clemson, Michaux, LEF</td>
<td>EXHIBITS: Earth Day Festival at N Charleston Park Circle. Display and educational materials distributed.</td>
<td>April 18, 2009</td>
<td>7,000</td>
<td>GP, R</td>
</tr>
<tr>
<td>Charleston Co.-CARE</td>
<td></td>
<td>EXHIBITS: Charleston Young Professionals Earth Day Event in N Charleston. Display and educational materials distributed.</td>
<td>April 22, 2009</td>
<td>25</td>
<td>GP</td>
</tr>
</tbody>
</table>

**Household Hazardous Materials Disposal Events**

<table>
<thead>
<tr>
<th>Lead Provider</th>
<th>Supporting Partner(s)</th>
<th>Activity</th>
<th>Date</th>
<th>Number of Impacts</th>
<th>Target Audience(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charleston County SW&amp;R</td>
<td></td>
<td>EVENT: Charleston Co. Solid Waste and Recycling held a series of HHM drop off events. 12,014 HHM were recycled in the ACSEC reporting period</td>
<td>Multiple</td>
<td>718 (cars); 12,014 HHMs</td>
<td>GP</td>
</tr>
</tbody>
</table>

Charleston County Solid Waste and Recycling conducts several hazardous household material (HHM) collection events in communities throughout the county. These traveling events compliment the HHM collection facilities at eight locations in the county, which operate year-round. They provide a community convenience as well as awareness of the importance of proper disposal. Appendix D contains data gathered from the recycling events. Over 12,000 units of HHMs, including pesticides, paint, containers, cleaners, and batteries were recycled during the ACSEC reporting period.
The ACSEC co-sponsored the Education Village at the 2009 Harbor Fest, which took place at the Charleston Maritime Center on June 26-28th. The event is organized by the South Carolina Maritime Foundation-Spirit of SC, an ACSEC partner. Several ACSEC partners also provided support for the event, including Clemson, SC Sea Grant, Lowcountry Earth Force (LEF), the City of Charleston and Charleston County Stormwater Departments. The theme of the ACSEC exhibit was “Water Walk: Learn how to reduce your pollution footprint”. A graphic slogan was also produced for the event, “Get on Your Good Foot, Reduce Your Pollution Footprint”. The center isle of the education tent was devoted to educating the public about watersheds, stormwater runoff, tidal creek research, and specific ways to reduce your pollution footprint through management of pet waste, home landscape, and cars/boats. A series of 6 poster displays were produced for the event, as well as an ACSEC exhibit with education materials, and two booths that rotated information and activities.

The Clemson Master Gardener program exhibited the Carolina Yards and Neighborhood program, including displays on rain gardens and native plants. The City of Charleston and LEF conducted envoirgape demonstrations. Charleston County provided a slide show of stormwater issues in the area and answered questions from the public, and videos on septic tank maintenance and EPA’s Weather Channel production of “After the Storm” were shown. The ACSEC booth provided materials on member programs, and promotional materials were distributed that included: pet waste bag dispensers with clip (also used for waste diaper bags and litter), spray bottles with SC Coast-a-Syst ingredients for natural cleaners, rain gauges, and water bottles with facts about stormwater. With over 50,000 people attending the event, residents and visitors from the region were exposed to a variety of information about stormwater runoff education. The event exemplified the success of the regional partnership.
## PUBLIC EVENTS

### Youth Events

<table>
<thead>
<tr>
<th>Lead Provider</th>
<th>Supporting Partner(s)</th>
<th>Activity</th>
<th>Date</th>
<th>Number of Impacts</th>
<th>Target Audience(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LEF</td>
<td>Multiple</td>
<td>YOUTH EVENT: Youth Environmental Summit (YES). The YES was held at the James Island County Park and included a variety of booths by organizations educating youth on environmental themes. The ACSEC conducted enviroscape presentations</td>
<td>May 30, 2008</td>
<td>100</td>
<td>YT</td>
</tr>
<tr>
<td>SC DNR-Soil and Water Cons. Dist</td>
<td></td>
<td>YOUTH EVENT: Envirothon, A state-wide competition for rising juniors and seniors, designed to test their knowledge of environmental topics</td>
<td>May 1, 2009</td>
<td>175</td>
<td>YT</td>
</tr>
<tr>
<td>Michaux Conservancy</td>
<td>LEF</td>
<td>YOUTH EVENT: Noisette Creek Day. An educational event for high school students in the N. Charleston area</td>
<td>May 15, 2009</td>
<td>250</td>
<td>YT</td>
</tr>
<tr>
<td>LEF</td>
<td>Multiple</td>
<td>YOUTH EVENT: Youth Environmental Summit (YES). The YES was held at the RiverFront Park in N. Charleston and included a variety of booths by organizations educating youth on environmental themes. The ACSEC conducted enviroscape presentations.</td>
<td>May 22, 2009</td>
<td>400</td>
<td>YT</td>
</tr>
</tbody>
</table>
CONFERENCES

<table>
<thead>
<tr>
<th>Lead Provider</th>
<th>Supporting Partner(s)</th>
<th>Activity</th>
<th>Date</th>
<th>Number of Impacts</th>
<th>Target Audience(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clemson</td>
<td>Multiple</td>
<td>CONFERENCE: SC Water Resource Conference. First Annual, held at N Charleston Convention Center. 68 of 350 registered attendees were from the Charleston area</td>
<td>October 14-15, 2008</td>
<td>68</td>
<td>T, EA, C</td>
</tr>
</tbody>
</table>

Policy makers, scientists, and industry leaders gathered at the Charleston Area Convention Center for the 2008 Water Resources Conference. The two-day conference was organized by the Clemson University Restoration Institute and planned by a group of 19 universities, government agencies, and industries. More than 350 participants attended 30 concurrent sessions on water quality, conservation, public policy, future needs, land-use planning, and economic development. The conference will be held bi-annually.

<table>
<thead>
<tr>
<th>Lead Provider</th>
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<th>Number of Impacts</th>
<th>Target Audience(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC DNR-ACE Basin CTP</td>
<td>Multiple</td>
<td>CONFERENCE: Sustainable Development in Coastal South Carolina. Two-day conference in Beaufort, SC for coastal decision makers to</td>
<td>March 10-11, 2009</td>
<td>116</td>
<td>EA, T</td>
</tr>
</tbody>
</table>

The goal of Sustainable Development in Coastal South Carolina conference was to provide information on how Low Impact Development and Light Imprint practices can be incorporated into local and regional plans, codes, and regulations. Presentations and workshops addressed the barriers to current regulations, economic incentives, examples of where practices have been implemented, and planning components of Low Impact Development and Light Imprint initiatives. The conference was organized by the SC DNR-ACE Basin Coastal Training Program, and was supported by the ACSEC and several consortium partners.
## PRESENTATIONS AND WORKSHOPS

<table>
<thead>
<tr>
<th>Lead Provider</th>
<th>Supporting Partner(s)</th>
<th>Activity</th>
<th>Date</th>
<th>Number of Impacts</th>
<th>Target Audience(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC DNR-Soil and Water Cons. Dist</td>
<td></td>
<td>PRESENTATION: Ashley Scenic River Event: Blueways, Bluegrass, and Barbeque, Two Presentations on “Estuaries as Indicators of Coastal Health” and “Ashley River Fisheries” Resource professionals answered questions and educational materials were distributed.</td>
<td>October 16, 2008</td>
<td>110</td>
<td>GP, R, EA</td>
</tr>
<tr>
<td>Clemson</td>
<td>SC DNR, Sea Grant</td>
<td>PRESENTATION: Pond Management presentation for Berkeley and Dorchester Counties</td>
<td>April 24, 2008</td>
<td>27</td>
<td>PO, C, T</td>
</tr>
<tr>
<td>Clemson</td>
<td></td>
<td>PRESENTATION: Multiple presentations on CYN topics, from general to specific principles, to HOAs and General Public</td>
<td>Multiple, See Below</td>
<td>257</td>
<td>GP, R</td>
</tr>
</tbody>
</table>

- Charleston Co. Bees Ferry Landfill-May 31, 2008, CYN Composting, 47 impacts
- Charleston Garden Festival, Middleton Plantation-October 19, 2008, CYN Composting, 25 impacts
- Charleston Co. Bees Ferry Landfill-Nov. 8, 2008, CYN Composting, 29 impacts
- North Charleston Citizen Advisory Council-Feb. 5, 2009, CYN General, 22 impacts
- Park Circle HOA-Feb. 23, 2009, CYN General, 30 impacts
- SC DNR, Coastal Exploration Series, Ft. Johnson-March 18, 2009, CYN Rain Barrel Demo, 58 impacts
- N Charleston, Forest Hills HOA-March 25, 2009, CYN General, 8 impacts
### PRESENTATIONS AND WORKSHOPS

<table>
<thead>
<tr>
<th>Lead Provider</th>
<th>Supporting Partner (s)</th>
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<th>Date</th>
<th>Number of Impacts</th>
<th>Target Audience(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clemson</td>
<td>SESWA</td>
<td>PRESENTATION: Presented consortium model approach to public education and involvement to annual SESWA conference in Charleston, SC</td>
<td>October 2, 2008</td>
<td>45</td>
<td>T, EA, C</td>
</tr>
<tr>
<td>Clemson</td>
<td>SCMEA (SC Marine Educators Association)</td>
<td>PRESENTATION: Presented WQ and stormwater runoff pollution and consortium support for teacher programs at annual conference in Myrtle Beach, SC. Teacher recruited for GREEN program from Burke HS</td>
<td>October 11, 2008, 2008</td>
<td>10</td>
<td>YT, HE</td>
</tr>
<tr>
<td>Clemson</td>
<td>SCASM (SC Association of Stormwater Managers)</td>
<td>PRESENTATION: Presented Consortium model approach to public education and involvement to quarterly SCASM meeting, Columbia, SC</td>
<td>March 5, 2009</td>
<td>110</td>
<td>T, EA, C</td>
</tr>
<tr>
<td>SC Marine Association</td>
<td>Clemson</td>
<td>PRESENTATION: Presented information on stormwater runoff pollution, a portion of the Clean Marina Program</td>
<td>March 12, 2009</td>
<td>9</td>
<td>B</td>
</tr>
<tr>
<td>Charleston Co. CARE</td>
<td>Clemson, Woolpert, USC, Noisette</td>
<td>PRESENTATION: Stormwater Seminar, part of a series by Charleston Co. Project Impact. 4 presentations on construction site sediment and erosion control, stormwater BMPs/LID, and local research and overview of Oak Terrace Preserve</td>
<td>April 24, 2008</td>
<td>27</td>
<td>T, EA</td>
</tr>
<tr>
<td>Charleston Co.</td>
<td></td>
<td>PRESENTATION: Buck Hall Plantation HOA. Presentation on Charleston Co.’s stormwater management program</td>
<td>June 9, 2009</td>
<td>15</td>
<td>GP, R</td>
</tr>
<tr>
<td>Clemson</td>
<td></td>
<td>PRESENTATION: Enviroscape Demonstrations at multiple schools and after-school programs: Feb 21 Creative Arts School (9); Mar 17 Memminger (14); Mar 19, Pickney (13); Aug. 1 N. Chas Camps (16);</td>
<td>Multiple</td>
<td>52</td>
<td>GP, R</td>
</tr>
<tr>
<td>SC DNR-ACE Basin NERR</td>
<td>Sea Grant, City of N. Charleston, Deborah Hernandez and Co.</td>
<td>WORKSHOP: Stormwater Ponds and LID, two presentations then break out focus groups to foster discussion of ways to improve stormwater pond management. A whitepaper was developed which incorporated the data</td>
<td>Jan 22, 2009</td>
<td>49</td>
<td>T, EA</td>
</tr>
</tbody>
</table>
## Public Education

### TRAININGS AND CERTIFICATIONS

<table>
<thead>
<tr>
<th>Lead Provider</th>
<th>Supporting Partner(s)</th>
<th>Activity</th>
<th>Date</th>
<th>Number of Impacts</th>
<th>Target Audience(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clemson</td>
<td></td>
<td>TRAININGS: Master Gardeners received advanced trainings on coastal water resource issues and storm-water runoff pollution, water smart landscaping, and the Carolina Yards and Neighborhoods program</td>
<td>Multiple</td>
<td>56</td>
<td>T, EA, C</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Master Gardener Advanced Trainings:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Water Smart Landscaping, Statewide satellite seminar, with local demonstrations on rain garden (installed at Coastal REC) and rain barrels: Aug. 19, Sept. 16, and Oct. 14, 2008—16 trained</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Carolina Yards and Neighborhoods, Ladson Exchange Park Carolina Yard living classroom: November 12, 2009—15 trained</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clemson</td>
<td>CCPRC</td>
<td>TRAININGS: Master Gardener training in Tri-County. They will join over 300 in the region, providing 1000s of hours of volunteer community service.</td>
<td>Fall 08</td>
<td>30</td>
<td>GP, R</td>
</tr>
<tr>
<td>Clemson</td>
<td>CCPRC</td>
<td>TRAININGS: Master Naturalist Certification Program began in the Charleston region in the Spring of 08 and 3 classes have gone through the training course.</td>
<td>Spring 08, Fall 08, Spring 09</td>
<td>53</td>
<td>GP, R</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Charleston County Parks and Recreation Commission is the host site for the Charleston Master Naturalist program. Master Naturalists receive training in a 14-week course and then become certified once volunteer hour requirements have been met, similar to the Master Gardener program. Water resource education is a fundamental component of the program, and Master Naturalists likewise help translate that information to the public.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SC DNR-SCORE</td>
<td></td>
<td>TRAININGS: SCORE program trained volunteers to monitor water quality parameters in the Charleston Harbor Area: 21 in 2008 and 5 in 2009</td>
<td>July 08-June 09</td>
<td>26</td>
<td>GP</td>
</tr>
</tbody>
</table>
The Certified Erosion Prevention and Sediment Control Inspector (CEPSCI) Team has created and implemented a unique program where affected individuals are impacting nearly every construction site greater than one (1) acre throughout South Carolina. Given that developed land area in South Carolina has increased 750,000 acres over a 10-year period and shows an accelerating trend, it is imperative that knowledgeable personnel are assessing the environmental condition of land disturbance on a consistent basis. CEPSCI-certified individuals have the responsibility to ensure the protection of the State’s valuable water resources by taking information, techniques and practices obtained during the course and applying them in field situations.

The CEPSCI program has three primary objectives: 1) educate candidates on the proper installation, maintenance, and inspection of erosion prevention and sediment control measures at construction sites; 2) create an interactive forum where participants are informed of new regulatory requirements and their responsibilities related to full compliance; and 3) provide DHEC-approved training and programmatic infrastructure necessary for a robust environmental certification program.
### Public Involvement

#### LITTER SWEEPS

<table>
<thead>
<tr>
<th>Lead Provider</th>
<th>Supporting Partner(s)</th>
<th>Activity</th>
<th>Date</th>
<th>Number of Impacts</th>
<th>Target Audience(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sea Grant</td>
<td>SC DNR</td>
<td>LITTER SWEEPS: Beach Sweep/River Sweep, largest statewide clean up event of its kind. Thousands participate annually. 16,959 pounds of debris were removed from the Tri-Counties beaches and rivers</td>
<td>September 20, 2008</td>
<td>1,391</td>
<td>GP</td>
</tr>
<tr>
<td>Michaux Conservancy</td>
<td>Keep North Charleston Beautiful</td>
<td>LITTER SWEEPS: Noisette Creek-Clean Cities Sweep, Michaux hosted clean-up along Noisette Creek</td>
<td>April 24, 2009</td>
<td>50</td>
<td>GP</td>
</tr>
<tr>
<td>Michaux Conservancy</td>
<td>Palmetto Pride</td>
<td>LITTER SWEEPS: Community Pride grant awarded to Michaux, litter pick up in the Chicora neighborhood</td>
<td>April 25, 2009</td>
<td>100</td>
<td>GP</td>
</tr>
<tr>
<td>Clemson</td>
<td>SC DOT</td>
<td>LITTER SWEEPS: Adopt a Highway is coordinated in Charleston Co. by Community Pride, Inc., and conducts four sweeps seasonally each year. Volunteers adopt a 2-mile stretch of highway. In '08-'09, 100,891 pounds of debris were removed from roadsides and ditches</td>
<td>Feb. 2, May 31, Sept. 6, Nov. 15, 2008; March 7, 2009</td>
<td>3,072</td>
<td>GP</td>
</tr>
</tbody>
</table>
Public Involvement

STORM DRAIN MARKING

<table>
<thead>
<tr>
<th>Lead Provider</th>
<th>Supporting Partner(s)</th>
<th>Activity</th>
<th>Date</th>
<th>Number of Impacts</th>
<th>Target Audience(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clemson</td>
<td>LEF, Charleston Co. SW&amp;R</td>
<td>INVOLVEMENT: Storm Drain Marking program was kicked off at the Earth Day Festival in N Chas. All the storm drains around Park Circle were marked (14). Youth installed the markers and a movie that was shot by LEF was also shown at Marion Square prior to the movies on the green</td>
<td>April 18, 2009</td>
<td>18</td>
<td>YT, GP</td>
</tr>
<tr>
<td>Clemson</td>
<td>LEF</td>
<td>INVOLVEMENT: Storm Drain Marking. Youth led by LEF, marked 12 drains in Byrns Down subdivision</td>
<td>April 25, 2009</td>
<td>15</td>
<td>GP</td>
</tr>
</tbody>
</table>

RAIN GARDEN INSTALLATIONS

<table>
<thead>
<tr>
<th>Lead Provider</th>
<th>Supporting Partner(s)</th>
<th>Activity</th>
<th>Date</th>
<th>Number of Impacts</th>
<th>Target Audience(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clemson</td>
<td></td>
<td>RAIN GARDEN: Master Gardeners installed a rain garden at the MG demonstration garden at the Coastal Research and Education Center</td>
<td>October 16, 2008</td>
<td>16</td>
<td>R</td>
</tr>
<tr>
<td>Clemson</td>
<td>LEF</td>
<td>RAIN GARDEN: LEF Youth from middle and high schools in the Tri-County installed a rain garden at the Carolina Yard Living Classroom in Ladson. Picture published in P&amp;C</td>
<td>October 25, 2008</td>
<td>14</td>
<td>YT</td>
</tr>
</tbody>
</table>
In 2008 and 2009, the SC DNR SC Oyster Restoration and Enhancement (SCORE) program expanded its water quality monitoring project in the Charleston Harbor watershed with ACSEC support, which included adding monitoring supplies for additional sites. Eight new monitoring sites were added in 2008 and two were added in 2009. This brings the total monitoring sites in this watershed to 18. During this time period, 18 groups were trained to monitor water quality. Volunteers receive one-on-one training, are supplied with water quality testing equipment and are asked to complete an interactive tutorial available at the SCORE website (http://score.dnr.sc.gov). They are assigned a location and alternate with other monitoring teams, ideally providing water quality data on a weekly basis. Data is entered at an interactive website. School groups also participated in field trips and classroom activities related to water quality and the influence of oysters on water quality. In addition the SCORE project constructs oyster reefs by planting bags of oyster shells on suitable shorelines. In 2008 and 2009, 14 oyster reef construction projects were conducted in Charleston County, involving 284 volunteers. Each project consists of approximately 4.5 tons of oyster shells contained in individual plastic mesh bags. A finished project typically has a footprint of 40 m² or 0.01 acres, although some of the projects have been larger.

**WATER QUALITY MONITORING**

<table>
<thead>
<tr>
<th>Lead Provider</th>
<th>Supporting Partner(s)</th>
<th>Activity</th>
<th>Date</th>
<th>Number of Impacts</th>
<th>Target Audience(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC DNR-SCORE</td>
<td>Multiple</td>
<td>MONITORING: SCORE program, multiples sites around Charleston.</td>
<td>Weekly-Monthly</td>
<td>58</td>
<td>GP, R, YT</td>
</tr>
<tr>
<td>LEF</td>
<td>Clemson</td>
<td>MONITORING: GREEN (Global Rivers Environmental Education Network) sampling by four teachers- in region (see highlights)</td>
<td>Weekly-Monthly</td>
<td>150</td>
<td>GP, R, YT</td>
</tr>
</tbody>
</table>
Global Rivers Environmental Education Network (GREEN) Program

Lowcountry Earth Force (LEF) was one of the original education partners in the ACSEC. In 2008, the ACSEC helped support the implementation of the GREEN program in the Tri-County area. By partnering, Earth Force and the ACSEC are able to provide high quality training, materials and support for selected Lowcountry teachers to engage their students as active citizens who improve conditions in their watersheds now and in the future. This program provides watershed education and water monitoring training for teachers, age-appropriate LaMotte test kits for student monitoring, additional collection and testing supplies as well as curriculum materials to engage students and teachers in service learning. Utilizing the service learning model provides a platform for students to engage the larger community in their efforts through contact with community partners such as The Spirit of S.C., municipal planning officials, county wastewater treatment facilities and many more.

For the 2008-2009 school year, the program was established in Berkeley, Dorchester and Charleston counties. Promotional materials were generated as well as some curriculum materials such as MOA’s and monitoring calendars. Through each school district office, schools were identified that fell under the ACSEC footprint. Due to time constraints, we were not able to gather all of the participating teachers for a training workshop so the current workshop is set for September, 2009. However, 4 of the participating teachers were able to begin monitoring with students during Spring, 2009. Through their participation in the GREEN program, students from Sangaree Middle School were able to take a field trip on The Spirit of S.C. to give them hands-on experience with water quality testing in the field and real-life applications of monitoring data.

All of the following schools have committed to the GREEN program and will be monitoring a body of water throughout the 2009-2010 school year. Projections for this school year include 300+ youth reached through direct programming as well as 15 teachers receiving direct watershed education training and professional development.

River Oaks Middle School (2 teachers)   Sangaree Middle School
Sedgefield Middle School   Academic Magnet High School (2)
Burke High School (2)   Stratford High School (2)
Summerville High School   Memminger Elementary School

Charleston Charter School for Math and Science
In 2008 and 2009, 43 area students attended two 4-H2O summer camps in the region. 4-H2O Pontoon Classroom is a summer day camp designed to teach students about the importance of our water resources through hands-on, experiential learning. Activities include water quality sampling, cast and dip netting, invertebrate identification, ocean seining, phytoplankton trawls, and historic interpretations, as well as visiting with local scientists. These activities are aligned with South Carolina state standards.

Exploring the Cooper River and Beyond takes area students to a variety of sites on the Cooper River, Charleston Harbor, barrier islands, and local beaches. The river, estuary, and ocean are explored from an ecological as well as historical perspective; highlighting the relationship, influences, and connections between river systems and people.
The first phase of the ACSEC represents a year of milestones and highlights, growth and development, and mapping a course. This report illustrates the success of a regionally applied education program fostered through collaboration with a dedicated group of partners. The list of partners joining the consortium is growing, and with it are new opportunities to reach a wider and more diverse audience. Considering the inherent challenges of improving water quality, and the fundamental role of education in this effort, it is clear that a united approach is essential.

The outreach efforts of the ACSEC recorded over one million impacts to residents and visitors within the region. A number of audiences were defined and targeted, including home, boat/marina, and pet owners; youth and teachers; engineers, contractors, developers, and commercial; and elected and appointed officials. The ACSEC education plan outlined a long-term education strategy, which links audiences with specific pollutants, and provides a platform for a targeted outreach campaign. To better understand the region, two surveys will provide information on public perceptions, knowledge, and behaviors. These data will be analyzed geographically to define regional characteristics and audiences for future guidance.

Looking back on the first phase of the program, it is clear how far the ACSEC has come from the initial discussions, but it is also evident that this is the beginning of a long journey. The ACSEC is indeed taking its own advice and making the effort to step forward on our good foot.
Appendix A
Phone and Field Surveys

Environmental Attitudes and Behaviors
of a Sample of South Carolina Residents from Four Regions of the State

Introduction:
Hello, my name is __________, and I am calling from Clemson University. We are conducting research on general attitudes and knowledge about water resources in South Carolina. We are not selling or soliciting anything; we simply would like to hear your opinion on issues related to water and the environment. This survey will take approximately 10-15 minutes to complete.

Your participation in this research study is voluntary. You may choose not to participate and you may withdraw your consent to participate at any time. You will not be penalized in any way should you decide not to participate or to withdraw from this study.

We will do everything we can to protect your privacy. We will not ask for your name or any other identifying information. Results will be reported in aggregate form only. With your permission, we may use a quote from your interview, without attributing the quote to you as an individual. Your identity will not be revealed in any publication that might result from this study.

There are no known risks associated with this study. Your participation in the survey is deemed consent to participate in the study.

If asked about the purpose of the study: “The study results will be used to see what kind of environmental information citizens need and are interested in and will also be compared annually to gauge change in South Carolinians understanding of these topics.”

If asked who is sponsoring the study: “The study is sponsored by Clemson University Public Service and Agriculture’s Carolina Clear program. The goal of this program is to work with communities in educating and involving citizens in pollution prevention and awareness.”

Screening Questions

1. Would you be willing to help us with this research by answering a few questions?
   No: Continue to question 2.
   Yes: Continue to question 3.

2. Would there be a better time to call you when you would be willing to participate?
   No: “Oh, I am sorry to have bothered you.”
   Yes: “Thank you. What would be a good time for us to call you back?”

Carolina Clear Survey – 2009 - 1
3. Are you eighteen years of age or older?

   No: “Oh, I’m sorry to have bothered you. You must be at least 18 to participate in this survey. Is there someone over 18 that I can speak to?”

   Yes: Repeat the introduction and question 1.

   No: “Thank you for your time. Have a nice evening.”

   Yes: Continue to the next question.

4. Can you please tell me the zip code of your primary residence?

   [NOTE: If the person is not from a zip code that is listed for this particular area, then thank them for their time: “Thank you. We are interviewing residents of other areas of your area. Thank you anyway for your willingness to participate. Have a good evening.”]

   Thank you. I am going to begin the survey now with some questions related to your understanding of water resources and homeowner impact on water quality.

   1. Do you live next to a creek, stream, river, lake, or pond – that is, does your property adjoin some body of water?

      Yes
      No
      Do not know
      Refusal

   2. I’d like to know how concerned are you with pollution and environmental quality in your local streams and waterways: Would you say you are very concerned, somewhat concerned, not very concerned, or not at all concerned?

      Very concerned
      Somewhat concerned
      Not very concerned
      Not at all concerned
      Do not know
      Refused
Appendix A
Phone and Field Surveys

3. In general, how much does what people do on the land affect the quality of their local streams and waterways?
   - A great deal
   - Somewhat
   - Not too much
   - Not at all
   - Do not know
   - Refusal

4. To what extent do you agree or disagree with the following statements? Your choices are as follows:
   - Strongly agree
   - Agree
   - Disagree
   - Strongly disagree
   - Don’t know
   - Refusal
   
   Inspection and pump out of septic tanks protects water quality.

5. Pet waste is a source of bacteria pollution in lakes, rivers, and streams.
   - Strongly agree
   - Agree
   - Disagree
   - Strongly disagree
   - Don’t know
   - Refusal

6. Stormwater is runoff from yards and roads during storm events or from irrigation; it drains to ditches and storm sewers along roadways. Do you believe that this stormwater is treated before reaching our lakes, streams, and beaches?
   - Yes, it is treated.
   - No, it is not treated.
   - Do not know
   - Refusal

Carolina Clear Survey – 2009 - 3
7. For this question, I am going to mention some specific, possible sources of water pollution. Please tell me if each has a great impact, some impact, very little impact or no impact on streams of lakes in your area.

Fertilizers and lawn chemicals that people use on their lawns and gardens?

8. Fuel and oil leaks from trucks, buses or automobiles?
9. Pet Waste?
10. Runoff from people washing their cars?
11. Industrial sites?
12. Farms operations?
13. Sediment or dirt from construction sites?
14. Parking lot runoff?

15. River banks and lake fronts are obvious places to think about water quality issues. In your opinion, how effective are the following measures in maintaining land along a river or lake in an environmentally-friendly way?

Allowing natural vegetation to grow wild?

  Very effective
  Somewhat effective
  Not at all effective
  Do not know
  Refusal

17. Keeping grass or other vegetation mowed to the edge of the water?
18. Planting bushes and shrubs?
19. Installing a retaining wall or bulkhead?

20. In your opinion, are there any other effective measures that could be used to maintain land along a river or lake in an environmentally friendly way? If yes, please specify.

  Yes: (Specify ________________________ )
  No
  Do not know
  Refusal
Appendix A
Phone and Field Surveys

21. I am going to read you some potential definitions of a “watershed.” Can you tell me which best fits your definition of what a watershed is? Is it an area that retains water like a swamp or a marsh, all of the land area that drains into a specific river or lake, a reservoir that serves as a municipal water source, a small building where water is stored, or none of the things I've mentioned?
   - Low area that retains water
   - Area that drains into specific river or lake
   - Reservoir that serves as a municipal water source
   - Small building where water is stored
   - None of the options mentioned (Please specify other definition: ________)
   - Do not know
   - Refusal

22. Now, I'd like to know about your participation in several recreational activities. Please tell me how often you do each of the following activities:
   - Kayaking or canoeing?
     - Often (weekly or bi-weekly, during the appropriate season)
     - Sometimes (monthly)
     - Rarely (a few times each year)
     - Never
     - Do not know
     - Refusal

23. Fishing?
24. Swimming in rivers and lakes?
25. Motorboating?
26. Visiting the beach?
27. Hiking/walking in parks or other protected public lands?
28. Hunting or trapping?

29. How do you determine how much fertilizer or pesticide to use and when to use it? You are not limited to one answer.
   a. Friends, neighbors and relatives tell you how much to use and when to use it.
   b. Lawn care company takes care of it
   c. Lawn care company recommendation
   d. You read the product information and instructions on the bag or container.
   e. You have your soil tested by the local Cooperative Extension office and receive directions based on those results.
   f. Home & Garden Store advice
   g. Other:
   h. Not applicable. I do not use fertilizers or pesticides.

   Carolina Clear Survey – 2009 - 5
30. In the past 2 years, have you made an effort to reduce water usage out of concern for drought conditions?

   Yes
   No
   Do not know
   Refused

31. In the past 2 years, have you made an effort to reduce water usage out of concern for the quality of water in your local streams and lakes?

   Yes
   No
   Do not know
   Refused

32. In the past two years, have you participated in a lake, river, or roadside clean-up event?

   Yes
   No
   Do not know
   Refused

33. In the past two years, have you joined or volunteered for a conservation or environmental organization? If yes, which one?

   Yes (Specify: ____________________ )
   No
   Do not know
   Refused

34. Are you, or someone in your household, responsible for the following activities?

   Mowing your lawn?

   Yes, either I or someone in my household is responsible for mowing my lawn.
   No, someone from outside my household mows my lawn.
   Not applicable. I do not mow my lawn or have a lawn to mow.
   Do not know
   Refusal
Appendix A
Phone and Field Surveys

35. Fertilizing your lawn?

Yes, either I or someone in my household is responsible for mowing my lawn.
No, someone from outside my household fertilizes my lawn.
Not applicable. I do not fertilize my lawn or have a lawn to fertilize.
Do not know
Refusal

36. Now, I am going to read a list of activities. I'd like to know how often, in the past two years, you have done the following.... Please also let me know if the question does not apply to you. In the past two years, how often have you....

Considered the likelihood of a rain storm before treating your lawn with fertilizer or pesticide?

I always considered the likelihood of rain every time I treat my lawn.
I nearly always considered the likelihood of rain before I treat my lawn.
I hardly ever considered the likelihood of rain before I treat my lawn.
I never considered the likelihood of rain before I treat my lawn.
Does not apply, either I do not have a lawn or I did not use fertilizers or pesticides.
Do not know
Refusal

37. Picked up after your pet while taking your pet for a walk?

I always picked up after my pet whenever I took my pet for a walk.
I nearly always picked up after my pet whenever I took my pet for a walk.
I hardly ever picked up after my pet whenever I took my pet for a walk.
I never picked up after my pet whenever I took my pet for a walk.
Does not apply, I do not own a pet or I did not take my pet for a walk.
Do not know
Refusal

Carolina Clear Survey – 2009 - 7
38. Operated a vehicle with a motor oil leak?
   I always operated a vehicle with a motor leak.
   I nearly always operated a vehicle with a motor leak.
   I hardly ever operated a vehicle with a motor leak.
   I never operated a vehicle with a motor leak.
   Does not apply, I do not own a car.
   Do not know
   Refusal

39. Disposed of oil, paint or other chemical down storm drains?
   I always disposed of oil, paint or other chemical down storm drains.
   I nearly always disposed of oil, paint or other chemical down storm drains.
   I hardly ever disposed of oil, paint or other chemical down storm drains.
   I never disposed of oil, paint or other chemical down storm drains.
   Does not apply, I did not use oil, paint or other chemical.
   Do not know
   Refusal

40. Washed your car on the lawn or gravel instead of pavement?
   I always washed my car on the lawn or gravel instead of pavement.
   I nearly always washed my car on the lawn or gravel instead of pavement.
   I hardly ever washed my car on the lawn or gravel instead of pavement.
   I never washed my car on the lawn or gravel instead of pavement.
   Does not apply, I either do not own a car or did not wash my car.
   Do not know
   Refusal

Carolina Clear Survey – 2009 - 8
Appendix A
Phone and Field Surveys

41. Dumped grass clippings or leaves down storm drains or backyard creeks?
   I always dumped grass clippings or leaves down storm drains or backyard creeks.
   I nearly always dumped grass clippings or leaves down storm drains or backyard creeks.
   I hardly ever dumped grass clippings or leaves down storm drains or backyard creeks.
   I never washed dumped grass clippings or leaves down storm drains or backyard creeks.
   Does not apply, I did not have grass clippings or leaves from my lawn.
   Do not know
   Refusal

42. Stored fertilizers and pesticides in leaking containers?
   I always stored fertilizers and pesticides in leaking containers.
   I nearly always stored fertilizers and pesticides in leaking containers.
   I hardly ever stored fertilizers and pesticides in leaking containers.
   I never stored fertilizers and pesticides in leaking containers.
   Does not apply, I did not use fertilizers or pesticides.
   Do not know
   Refusal

43. How many times have you had your septic system inspected and/or pumped in the past two years? Specify number of times: _____________
   Do not know
   Not applicable. Do not have a septic tank.
   Refusal

Carolina Clear Survey – 2009 - 9
44. Generally, how do you currently remove or dispose of household chemicals such as paint/thinners, cleaners, pesticides)?
   a. Pour them out in the yard or woods
   b. Pour them into a storm drain or ditch
   c. Put them in the trash
   d. Pour them down the sink or toilet
   e. Take them to the dump/landfill on appointed days.
   f. Unsure.
   g. Do not use these products.
   h. Other: (please identify)

45. Now I would like to ask you some questions about how likely it is you would become involved with water resource issues in the following situations. Please respond as Very Likely, Somewhat Likely, Somewhat Unlikely, Not Likely, or Do not know.

   Would you become more involved if you had more information about water quality issues in your area? Would you say it would be...?

46. Would you become more involved if you knew your local government could save money in the long run by taking action to improve water quality? Would you say it would be...?

47. Would you become more involved if local newspapers or television stations ran stories on local water pollution problems? Would you say it would be...?

48. Would you become more involved if local newspapers or television stations ran stories on positive actions taken by local residents to improve water quality? Would you say it would be...?

49. Would you become more involved if you were being directly affected in some way by water pollution? Would you say it would be...?

50. Are you aware that Clemson University has a program called Carolina Clear, which aims to collaborate with communities and grassroot groups to conduct water resource education?

   Yes, I am aware of Carolina Clear and am familiar with its programs.
   Yes, I have heard of Carolina Clear, but am not familiar with its programs.
   No, I have never heard of Carolina Clear.

   If yes, how did you hear about Carolina Clear? (open-ended response)

Carolina Clear Survey – 2009 - 10
Insert regional-specific questions for each zip code/area.

Background Questions

Now we just have a few demographic questions. These are only for statistical purposes and will remain completely confidential.

51. Now I am going to read a list of age categories. Please stop me when I reach the category that includes your age at your last birthday. Are you...

   Under 18
   18 to 24
   25 to 34
   35 to 44
   45 to 54
   55 to 64
   65 or older
   Do not know
   Refused

52. What is the highest level of education that you have completed?
   Junior high school or less (1st to 8th grade)
   Some high school
   Graduated high school or earned GED
   Some college or technical school, but no degree
   Two-year college degree
   Four-year college degree
   Post graduate degree (Ph.D., MD, etc.)
   Do not know
   Refused

53. Do you rent or own the home in which you are currently living?
   Rent
   Own
   Do not know
   Refused
54. How do you describe your main racial or ethnic background?
   - White/Caucasian
   - Black/African American
   - Asian/Pacific Islander
   - Hispanic/Latino
   - Native American
   - Other/Mixed Race
   - Do not know
   - Refused

55. What is the respondent’s gender? (NOTE: This question is usually not asked by the interviewer, just noted)
   - Male
   - Female
Appendix A

Phone and Field Surveys

Regional-Specific Questions: Charleston Area

Zip Codes:
29403  29407  29418  29439  29461  29482
29405  29412  29420  29445  29464  29483
29406  29414  29429  29456  29466  29485

1. Have you ever heard of the Ashley Cooper Stormwater Education Consortium?

   Yes, I am aware of the Ashley Cooper Stormwater Education Consortium and am familiar with its programs.

   Yes, I have heard of Ashley Cooper Stormwater Education Consortium, but am not familiar with its programs.

   No, I have never heard of the Ashley Cooper Stormwater Education Consortium.

   If yes, how did you hear about the Ashley Cooper Stormwater Education Consortium? (open-ended response)

2. Of the options listed below, please let me know the three primary ways you receive local/regional information and news:
   a. TV-Evening News
   b. TV-Morning News
   c. Radio-public (NPR)
   d. Radio-general
   e. Newspaper-regional
   f. Newspaper-local
   g. Billboards/posters
   h. Events/workshops
   i. Other ________________________________

3. Do you use the Internet to get your local/regional information and news:

   Yes
   No
   Do not know
   Refusal

Carolina Clear Survey – 2009 - 13
3. To the best of your understanding, when rain falls where you live which body of water most directly absorbs the runoff? Can you tell me the specific waterbody (e.g. creek, stream, or river) that directly absorbs the runoff from rain that falls where you live?

   Yes, I can. Water runs off into the following body of water ______________ (interviewer types in a response to the open-ended portion of the survey question).

   Yes, I can, although I am not absolutely sure. I think water runs off into the following body of water ______________ (interviewer types in a response to the open-ended portion of the survey question).

   No, I do not know what waterbody receives the runoff from rain that falls where I live.

   Refusal

Thank you for your time. Have a nice evening.

**Interviewer if asked again about the purpose of the study:** “This study is being conducted by Clemson University. The results will be used to better inform residents of your area about local water quality efforts and results of water resource education. Thank you again for your help with our study. If you have any questions, you can contact the project coordinator, Dr. Catherine Mobley, at 864-656-3815.”
Appendix A - Phone and Field Surveys

Home Landscaping and Water Resources Public Survey
Information from this survey is confidential and will be used to help improve educational programs

County of Residence: _________________________________
Zip Code: _______________________________________
Gender (circle): Male  Female
Age (circle):  Under 18/ 18-30/ 31-40/ 41-50/ 51-60/ 61-70/ 71-80/ over 80
Ethnicity (circle): White/Non-Hispanic  African American  Hispanic/Latino  Other

Please Circle or Fill in the Blanks below:
I-LANDSCAPE:
1) Do you have a yard at your residence?  YES  NO
2) Would you characterize your home location as:  RURAL/ SUBURBAN/ URBAN
3) How big is your yard: Less than .25 acre/ .25-.5 ac/ .5-75 ac/ .75-1 ac/ 1-3 ac/ over 3 ac
4) What % of your landscape (estimate) is grassed lawn:
   Less than 25%/ 25-50%/ 50-75%/ Over 75%
5) How often do you fertilize every year: never/ once/ two or three times/ more than three times a year/ when it looks like it needs it
6) How do you determine what type and how much fertilizer to use:
   Label on Bag / Friends, Neighbors, or Relatives advice/ Lawn Care Company does it/
   Based on Soil Test and/or Extension Service Information/ Home Center or Lawn Store advice/ Other: _________________________________
7) Have you ever had a soil test done for your yard:  YES  NO
   7a) If yes, how long ago: less than 1 year/ 1-2 years/ 3-4 years/more than 5 years ago
8) Do you Compost at home:  YES  NO
   8a) If yes, what do you compost (circle all that apply):
   Yard trimmings/ Leaves/ Food Wastes/ Manure/ Sawdust/ Paper/ Other: _________________________________
   8b) If not, what do you do with your yard waste:
   Put in Trash/ County Picks Up Separately/ Burn/ Mulch
   Other: _________________________________
9) Do you use Pesticides on your Lawn: never/ sometimes/ regularly/ all the time
   9a) If yes, what types (circle all that apply): herbicides/insecticides/fungicides/other
   9b) If you use pesticides, is it normally a result of:
      dealing with a problem/ preventing a problem
10) How do you determine what type and how much pesticide to use:
    Label on Bag/Friends, Neighbors, or Relatives advice/ Lawn Care Company does it/
    Based on Extension Service recommendations/ Home Center or Lawn Store advice/ Other: _________________________________
11) Have you ever heard of native species plants?  YES  NO
   11a) If you have, do you use them in your home landscape?  YES  NO
11b) Why or Why Not? 

12) Have you ever heard of rain gardens?  YES  NO
   12a) If you have, did you install one at your home?  YES  NO
12b) Why or Why Not? 

13) Have you ever heard of rain barrels?  YES  NO
   13a) If you have, did you install one at your home?  YES  NO
13b) Why or Why Not? 

II-WATER

14) Do you think what people do on land affects bodies of water?  YES  NO  Don’t Know
15) Have you heard the term “WATERSHED”?  YES  NO
16) Do you know what a watershed is?  YES  NO
17) Do you think most storm water runoff is treated?  YES  NO  Don’t Know
18) Do you think urban areas/cities cause more water pollution than industries?  YES  NO  Don’t Know
19) Do you think shrubs and trees protect water quality?  YES  NO  Don’t Know
20) Do you think pesticides and fertilizers are sources of pollution in water bodies?  YES  NO  Don’t Know
21) Do you think pet waste is a source of pollution in water bodies?  YES  NO  Don’t Know
22) Do you own a dog(s)?  YES  NO
   a. If yes, do you pick up and dispose of their waste?  YES  NO  Sometimes
   b. If not, why?
   c. If not, would you be more likely to pick up pet waste if:
      more convenient/ ordinance required/ neighbor complaints/better methods
23) Do you think faulty septic systems cause pollution to water bodies?  YES  NO  Don’t Know
24) Is your home served by a septic system?  YES  NO  Don’t Know
   a. If yes, when was the last time it was inspected (years)?
      Less than a year/ 1-2 years/ 3-5 years/ 6 or more years ago
25) Do you think Household Chemicals (paints/paint thinners, cleaners, pesticides) are sources of pollution in water bodies?  YES  NO  Don’t Know
26) How do you dispose of household chemical containers?  Put them in the trash/ pour down the drain/ pour on the ground/ pour in a ditch/ pour down storm drain/ use them until finished/ take to landfill hazardous waste disposal
## Home Landscaping and Water Resources Public Survey Summary

### 1. Where are you taking this survey?

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<th>Survey Location</th>
<th>Response Count</th>
<th>Percent</th>
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<td>11.8%</td>
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<td>Hartsook 2000</td>
<td>18.5%</td>
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<td>Test</td>
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<td>Charleston Home &amp; Garden</td>
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<td>Home Builders Expo</td>
<td>12.2%</td>
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<td>HECSSA SC for HECSSA</td>
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<td>27.9%</td>
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*Answered question: 299, skipped question: 0*

### 2. What county do you live in?

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*Answered question: 279, skipped question: 1*

### 3. What is your age?

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*Answered question: 299, skipped question: 1*

### 4. What is your gender?

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<td>Female</td>
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*Answered question: 245, skipped question: 47*

### 5. What is your sex?

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<td>36-46</td>
<td>17.1%</td>
<td>25</td>
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<td>47-55</td>
<td>23.1%</td>
<td>34</td>
</tr>
<tr>
<td>56-64</td>
<td>24.2%</td>
<td>35</td>
</tr>
<tr>
<td>65-75</td>
<td>16.0%</td>
<td>21</td>
</tr>
<tr>
<td>76-85</td>
<td>5.2%</td>
<td>7</td>
</tr>
<tr>
<td>Over 85</td>
<td>1.1%</td>
<td>1</td>
</tr>
</tbody>
</table>

*Answered question: 289, skipped question: 27*

### 6. What is your ethnicity?

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Response Count</th>
<th>Answered</th>
</tr>
</thead>
<tbody>
<tr>
<td>White/Non-Hispanic</td>
<td>94.5%</td>
<td>205</td>
</tr>
<tr>
<td>African American</td>
<td>4.7%</td>
<td>12</td>
</tr>
<tr>
<td>Hispanic/Latino</td>
<td>0.6%</td>
<td>2</td>
</tr>
<tr>
<td>Other</td>
<td>0.1%</td>
<td>0</td>
</tr>
</tbody>
</table>

*Answered question: 388, skipped question: 56*

### 7. Do you have a yard at your residence?

<table>
<thead>
<tr>
<th>Have Yard</th>
<th>Response Count</th>
<th>Answered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>95.6%</td>
<td>278</td>
</tr>
<tr>
<td>No</td>
<td>4.4%</td>
<td>14</td>
</tr>
</tbody>
</table>

*Answered question: 292, skipped question: 4*

### 8. Would you characterize your home location as:

<table>
<thead>
<tr>
<th>Home Location</th>
<th>Response Count</th>
<th>Answered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rural</td>
<td>15.4%</td>
<td>43</td>
</tr>
<tr>
<td>Suburban</td>
<td>71.3%</td>
<td>199</td>
</tr>
<tr>
<td>Urban</td>
<td>13.3%</td>
<td>37</td>
</tr>
</tbody>
</table>

*Answered question: 279, skipped question: 17*

### 9. How big is your yard?

<table>
<thead>
<tr>
<th>Yard Size</th>
<th>Response Count</th>
<th>Answered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than .25 acres</td>
<td>38.1%</td>
<td>107</td>
</tr>
<tr>
<td>.26-.5 acres</td>
<td>26.5%</td>
<td>73</td>
</tr>
<tr>
<td>.51-.75 acres</td>
<td>12.1%</td>
<td>34</td>
</tr>
<tr>
<td>1-2 acres</td>
<td>8.9%</td>
<td>23</td>
</tr>
<tr>
<td>Over 2 acres</td>
<td>3.9%</td>
<td>10</td>
</tr>
</tbody>
</table>

*Answered question: 291, skipped question: 15*

### 10. What % of your landscape (estimate) is grass/lawn?

<table>
<thead>
<tr>
<th>Landscape Type</th>
<th>Response Count</th>
<th>Answered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 25%</td>
<td>18.7%</td>
<td>62</td>
</tr>
<tr>
<td>25-50%</td>
<td>28.8%</td>
<td>84</td>
</tr>
<tr>
<td>50-75%</td>
<td>33.9%</td>
<td>94</td>
</tr>
<tr>
<td>Over 75%</td>
<td>20.6%</td>
<td>59</td>
</tr>
</tbody>
</table>

*Answered question: 279, skipped question: 15*
## Home Landscaping and Water Resources Public Survey Summary

### 11. How often do you fertilize every year?

<table>
<thead>
<tr>
<th>Answer</th>
<th>Response</th>
<th>Percent</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td></td>
<td>21.1%</td>
<td>97</td>
</tr>
<tr>
<td>Once</td>
<td></td>
<td>32.5%</td>
<td>92</td>
</tr>
<tr>
<td>Two or three times a year</td>
<td></td>
<td>27.5%</td>
<td>73</td>
</tr>
<tr>
<td>More than three times a year</td>
<td></td>
<td>3.6%</td>
<td>10</td>
</tr>
<tr>
<td>When it looks like it needs it</td>
<td></td>
<td>4.5%</td>
<td>13</td>
</tr>
</tbody>
</table>

Answered question: 269
Skipped question: 16

### 12. How do you determine what type and how much fertilizer to use?

<table>
<thead>
<tr>
<th>Answer</th>
<th>Response</th>
<th>Percent</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Label on bag</td>
<td></td>
<td>48.1%</td>
<td>94</td>
</tr>
<tr>
<td>Friends, neighbors, or relatives</td>
<td></td>
<td>12.7%</td>
<td>27</td>
</tr>
<tr>
<td>Lawn care company does it</td>
<td></td>
<td>17.6%</td>
<td>36</td>
</tr>
<tr>
<td>Based on soil test and/or Extension Service Information</td>
<td></td>
<td>12.7%</td>
<td>27</td>
</tr>
<tr>
<td>Home center or home store advice</td>
<td></td>
<td>10.8%</td>
<td>23</td>
</tr>
<tr>
<td>Other (please specify)</td>
<td></td>
<td>9.9%</td>
<td>21</td>
</tr>
</tbody>
</table>

Answered question: 213
Skipped question: 03

### 13. Have you ever had a soil test done for your yard?

<table>
<thead>
<tr>
<th>Answer</th>
<th>Response</th>
<th>Percent</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td></td>
<td>35.0%</td>
<td>88</td>
</tr>
<tr>
<td>No</td>
<td></td>
<td>65.0%</td>
<td>187</td>
</tr>
</tbody>
</table>

Answered question: 285
Skipped question: 11

### 14. If yes to soil test, how long ago was your last soil test?

<table>
<thead>
<tr>
<th>Answer</th>
<th>Response</th>
<th>Percent</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 1 year</td>
<td></td>
<td>17.0%</td>
<td>12</td>
</tr>
<tr>
<td>1-2 years</td>
<td></td>
<td>32.8%</td>
<td>22</td>
</tr>
<tr>
<td>3-4 years</td>
<td></td>
<td>22.4%</td>
<td>19</td>
</tr>
<tr>
<td>More than 5 years</td>
<td></td>
<td>26.9%</td>
<td>15</td>
</tr>
</tbody>
</table>

Answered question: 87
Skipped question: 209

### 15. Do you compost at home?

<table>
<thead>
<tr>
<th>Answer</th>
<th>Response</th>
<th>Percent</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td></td>
<td>43.9%</td>
<td>125</td>
</tr>
<tr>
<td>No</td>
<td></td>
<td>56.1%</td>
<td>169</td>
</tr>
</tbody>
</table>

Answered question: 285
Skipped question: 11
### Appendix A

#### Phone and Field Surveys

## Home Landscaping and Water Resources Public Survey Summary

### Q16. If YES to composting, what do you compost? (check all that apply)

<table>
<thead>
<tr>
<th>Compost Item</th>
<th>Response Count</th>
<th>Response Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yard trimmings</td>
<td>82</td>
<td>79.3%</td>
</tr>
<tr>
<td>Leaves</td>
<td>56</td>
<td>52.8%</td>
</tr>
<tr>
<td>Food Wastes</td>
<td>55</td>
<td>51.1%</td>
</tr>
<tr>
<td>Manure</td>
<td>21</td>
<td>19.1%</td>
</tr>
<tr>
<td>Sawdust</td>
<td>14</td>
<td>12.1%</td>
</tr>
<tr>
<td>Paper</td>
<td>58</td>
<td>52.9%</td>
</tr>
<tr>
<td>Other (please specify)</td>
<td>7</td>
<td>6.2%</td>
</tr>
</tbody>
</table>

**Answered question:** 160  **Skipped question:** 180

### Q10. Do you use pesticides on your lawn?

<table>
<thead>
<tr>
<th>Response</th>
<th>Response Count</th>
<th>Response Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sometimes, Regularly, OR All the time</td>
<td>183</td>
<td>68.5%</td>
</tr>
<tr>
<td>Never</td>
<td>90</td>
<td>35.1%</td>
</tr>
</tbody>
</table>

**Answered question:** 272  **Skipped question:** 14

### Q15. If YES to using pesticides, what types do you use? (check all that apply)

<table>
<thead>
<tr>
<th>Pesticide Type</th>
<th>Response Count</th>
<th>Response Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Herbicides</td>
<td>62</td>
<td>45.2%</td>
</tr>
<tr>
<td>Insecticides</td>
<td>83</td>
<td>63.5%</td>
</tr>
<tr>
<td>Fungicides</td>
<td>20</td>
<td>15.1%</td>
</tr>
<tr>
<td>Other (please specify)</td>
<td>0</td>
<td>0.0%</td>
</tr>
</tbody>
</table>

**Answered question:** 93  **Skipped question:** 289

### Q17. If NO to composting, what do you do with your yard waste?

<table>
<thead>
<tr>
<th>Disposal Method</th>
<th>Response Count</th>
<th>Response Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Put in trash</td>
<td>23</td>
<td>20.5%</td>
</tr>
<tr>
<td>County picks up separately</td>
<td>46</td>
<td>41.1%</td>
</tr>
<tr>
<td>Burn</td>
<td>13</td>
<td>11.0%</td>
</tr>
<tr>
<td>Mulch</td>
<td>23</td>
<td>20.5%</td>
</tr>
<tr>
<td>Other (please specify)</td>
<td>12</td>
<td>10.7%</td>
</tr>
</tbody>
</table>

**Answered question:** 112  **Skipped question:** 184

### Q20. If you use pesticides, is it normally a result of...

<table>
<thead>
<tr>
<th>Reason for Use</th>
<th>Response Count</th>
<th>Response Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dealing with a problem</td>
<td>60</td>
<td>78.9%</td>
</tr>
<tr>
<td>Preventing a problem</td>
<td>21</td>
<td>25.9%</td>
</tr>
</tbody>
</table>

**Answered question:** 78  **Skipped question:** 218
## Home Landscaping and Water Resources Public Survey Summary

### 23. If YES to hearing of native species plants, do you use native species in your home landscape?

<table>
<thead>
<tr>
<th>Response</th>
<th>Percentage</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>62.3%</td>
<td>90</td>
</tr>
<tr>
<td>No</td>
<td>37.7%</td>
<td>61</td>
</tr>
</tbody>
</table>

**Why or why not?**

- 40 answered question
- 51 skipped question

### 24. Have you ever heard of rain gardens?

<table>
<thead>
<tr>
<th>Response</th>
<th>Percentage</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>53.1%</td>
<td>62</td>
</tr>
<tr>
<td>No</td>
<td>47.9%</td>
<td>52</td>
</tr>
</tbody>
</table>

**Why or why not?**

- 208 answered question
- 28 skipped question

### 25. If YES hearing of rain gardens, did you install one at your home?

<table>
<thead>
<tr>
<th>Response</th>
<th>Percentage</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>3.9%</td>
<td>3</td>
</tr>
<tr>
<td>No</td>
<td>96.1%</td>
<td>96</td>
</tr>
</tbody>
</table>

**Why or why not?**

- 40 answered question
- 99 skipped question

---

**Appendix A - Phone and Field Surveys**

FY 08-09 Annual Report

Ashley Cooper Stormwater Education Consortium
# Appendix A

## Phone and Field Surveys

### Home Landscaping and Water Resources Public Survey Summary

26. Have you ever heard of rain barrels?

<table>
<thead>
<tr>
<th>Response</th>
<th>Percent</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>80.2%</td>
<td>240</td>
</tr>
<tr>
<td>No</td>
<td>19.8%</td>
<td>59</td>
</tr>
</tbody>
</table>

answered question 260

left question 27

27. If YES to hearing of rain barrels, did you install one at your house?

<table>
<thead>
<tr>
<th>Response</th>
<th>Percent</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>18.5%</td>
<td>26</td>
</tr>
<tr>
<td>No</td>
<td>81.5%</td>
<td>151</td>
</tr>
</tbody>
</table>

answered question 170

left question 147

28. Do you think what people do on land affects bodies of water?

<table>
<thead>
<tr>
<th>Response</th>
<th>Percent</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>88.0%</td>
<td>206</td>
</tr>
<tr>
<td>No</td>
<td>12.0%</td>
<td>27</td>
</tr>
<tr>
<td>Don't know</td>
<td>1.0%</td>
<td>1</td>
</tr>
</tbody>
</table>

answered question 201

left question 26

29. Have you heard the term “watershed”?

<table>
<thead>
<tr>
<th>Response</th>
<th>Percent</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>80.5%</td>
<td>231</td>
</tr>
<tr>
<td>No</td>
<td>19.5%</td>
<td>59</td>
</tr>
</tbody>
</table>

answered question 266

left question 20

30. Do you know what a watershed is?

<table>
<thead>
<tr>
<th>Response</th>
<th>Percent</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>63.7%</td>
<td>174</td>
</tr>
<tr>
<td>No</td>
<td>36.3%</td>
<td>103</td>
</tr>
</tbody>
</table>

answered question 261

left question 35

31. Do you think most storm water runoff is treated?

<table>
<thead>
<tr>
<th>Response</th>
<th>Percent</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>9.6%</td>
<td>25</td>
</tr>
<tr>
<td>No</td>
<td>71.6%</td>
<td>187</td>
</tr>
<tr>
<td>Don't know</td>
<td>19.0%</td>
<td>49</td>
</tr>
</tbody>
</table>

answered question 261

left question 39
### Home Landscaping and Water Resources Public Survey Summary

#### 32. Do you think urban impervious surfaces cause more water pollution than industries?

<table>
<thead>
<tr>
<th>Response</th>
<th>Percent</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>56.9%</td>
<td>148</td>
</tr>
<tr>
<td>No</td>
<td>10.2%</td>
<td>42</td>
</tr>
<tr>
<td>Don't know</td>
<td>32.9%</td>
<td>70</td>
</tr>
</tbody>
</table>

answered question 260, skipped question 36

#### 33. Do you think shrubs and trees protect water quality?

<table>
<thead>
<tr>
<th>Response</th>
<th>Percent</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>83.8%</td>
<td>231</td>
</tr>
<tr>
<td>No</td>
<td>3.1%</td>
<td>8</td>
</tr>
<tr>
<td>Don't know</td>
<td>7.4%</td>
<td>10</td>
</tr>
</tbody>
</table>

answered question 268, skipped question 36

#### 34. Do you think pesticides and fertilizers are sources of pollution in water bodies?

<table>
<thead>
<tr>
<th>Response</th>
<th>Percent</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>90.8%</td>
<td>238</td>
</tr>
<tr>
<td>No</td>
<td>3.6%</td>
<td>9</td>
</tr>
<tr>
<td>Don't know</td>
<td>5.7%</td>
<td>15</td>
</tr>
</tbody>
</table>

answered question 263, skipped question 35

#### 35. Do you think pet waste is a source of pollution in water bodies?

<table>
<thead>
<tr>
<th>Response</th>
<th>Percent</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>91.9%</td>
<td>243</td>
</tr>
<tr>
<td>No</td>
<td>6.5%</td>
<td>16</td>
</tr>
<tr>
<td>Don't know</td>
<td>0.6%</td>
<td>2</td>
</tr>
</tbody>
</table>

answered question 261, skipped question 36

#### 36. Do you own a dog?

<table>
<thead>
<tr>
<th>Response</th>
<th>Percent</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>92.2%</td>
<td>267</td>
</tr>
<tr>
<td>No</td>
<td>7.8%</td>
<td>21</td>
</tr>
<tr>
<td>Don't know</td>
<td>0.0%</td>
<td>1</td>
</tr>
</tbody>
</table>

answered question 269, skipped question 38

#### 37. If yes, do you clean up and dispose of your waste?

<table>
<thead>
<tr>
<th>Response</th>
<th>Percent</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>60.1%</td>
<td>89</td>
</tr>
<tr>
<td>Sometimes or no</td>
<td>39.9%</td>
<td>59</td>
</tr>
<tr>
<td>If not, why?</td>
<td>0.0%</td>
<td>0</td>
</tr>
</tbody>
</table>

answered question 648, skipped question 628
Appendix A  
Phone and Field Surveys

Home Landscaping and Water Resources Public Survey Summary

41. If your home is served by a septic system, when was the last time it was inspected (years)?

<table>
<thead>
<tr>
<th>Response</th>
<th>Percent</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than a year</td>
<td>27.0%</td>
<td>93</td>
</tr>
<tr>
<td>1-2 years</td>
<td>30.0%</td>
<td>11</td>
</tr>
<tr>
<td>3-5 years</td>
<td>22.2%</td>
<td>9</td>
</tr>
<tr>
<td>6 or more years ago</td>
<td>10.4%</td>
<td>7</td>
</tr>
</tbody>
</table>

answered question 128

42. Do you think household chemicals (paints/pesticides, cleaners, etc.) are sources of pollution in water bodies?

<table>
<thead>
<tr>
<th>Response</th>
<th>Percent</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>95.6%</td>
<td>251</td>
</tr>
<tr>
<td>No</td>
<td>1.1%</td>
<td>3</td>
</tr>
<tr>
<td>Don't know</td>
<td>3.3%</td>
<td>9</td>
</tr>
</tbody>
</table>

answered question 254

43. How do you dispose of household chemical containers?

<table>
<thead>
<tr>
<th>Response</th>
<th>Percent</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Put them in the trash</td>
<td>20.6%</td>
<td>53</td>
</tr>
<tr>
<td>Pour down the drain</td>
<td>1.2%</td>
<td>3</td>
</tr>
<tr>
<td>Pour on the ground</td>
<td>1.3%</td>
<td>3</td>
</tr>
<tr>
<td>Pour in a ditch</td>
<td>0.8%</td>
<td>2</td>
</tr>
<tr>
<td>Pour down storm drain</td>
<td>0.8%</td>
<td>2</td>
</tr>
<tr>
<td>Use them until finished</td>
<td>15.5%</td>
<td>42</td>
</tr>
<tr>
<td>Take to landfill hazardous waste disposal</td>
<td>68.5%</td>
<td>176</td>
</tr>
<tr>
<td>Don't use chemicals</td>
<td>0.4%</td>
<td>1</td>
</tr>
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</table>

answered question 258

44. Is your home served by a septic system?

<table>
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<th>Response</th>
<th>Percent</th>
<th>Count</th>
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<td>Yes</td>
<td>16.4%</td>
<td>40</td>
</tr>
<tr>
<td>No</td>
<td>78.5%</td>
<td>203</td>
</tr>
<tr>
<td>Don't know</td>
<td>5.1%</td>
<td>14</td>
</tr>
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</table>

answered question 208

45. Do you own a dog and do not pick up and dispose of their waste, do you think you would be more likely to pick up pet waste if...

<table>
<thead>
<tr>
<th>Response</th>
<th>Percent</th>
<th>Count</th>
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</thead>
</table>

answered question 12

skip question 284
Local communities join forces to tackle stormwater pollution

CHARLESTON – In a joint effort to protect area water quality, communities across the Charleston region have joined with Clemson University's Carolina Clear program to tackle stormwater issues on a regional basis.

Representatives from 11 local governments signed a joint resolution to adopt a regional stormwater runoff education strategy through the Ashley Cooper Stormwater Education Consortium in a ceremony July 29 at the City Gallery at Waterfront Park in downtown Charleston.

The Ashley Cooper consortium, a partnership between communities and educators from universities, state agencies and nonprofits, is the third regional collaboration involving the Carolina Clear program. It follows similar efforts along the Grand Strand and in the Midlands.

The Environmental Protection Agency emphasizes public education as a fundamental component in reducing stormwater runoff pollution. The EPA requires that certain municipalities and counties educate and involve the public as part of the National Pollution Discharge Elimination System (NPDES) Phase II stormwater permit program.

Carolina Clear’s goal is to minimize polluted stormwater runoff by educating the general public, youth, builders, developers, homeowners and government officials about how they can keep water in the state’s streams, rivers and basins as clean as possible.

Cal Sawyer, Extension water quality coordinator and associate director of the newly designated Clemson University Center for Watershed Excellence, said it is the responsibility of local governments and the general public to keep surface waters as clean as possible.

As the Lowcountry adds people, businesses and industry, more impermeable surfaces are added in the form of rooftops, parking lots, driveways and roads. Whenever we build on our landscape, there can be corresponding affects to water quality, Sawyer said.
Appendix B
Resolution Ceremony Media Release

Most of the area’s drinking water comes from surface water, with the Goose Creek Reservoir serving as the primary source of Charleston-area drinking water. This means that such simple acts as picking up after dogs or limiting the amount of fertilizer used on lawns can help keep our rivers, lakes and streams clean, Sawyer said.

“It’s a public health issue and a safety issue,” he said. “We shouldn’t take these critical natural resources for granted.”

Healthy coastal watersheds are closely tied to the region’s economy, said Rick DeVoe, executive director of the S.C. Sea Grant Consortium, a partner in the Ashley Cooper consortium.

For example, water quality plays a significant role in the area’s tourism, whether by visitors renting kayaks, taking boat tours or just taking a dip in the ocean. Local communities experience a significant negative impact if a beach is closed for water quality reasons, DeVoe said.

Science-based education programs designed to improve coastal water quality benefit residents and visitors alike, he said.

“Our state economy depends in large part on the health of our coastal and marine resources. Tourism alone brings more than $16 billion dollars a year to South Carolina,” DeVoe said. “Through this consortium, we will be able to protect these resources so that people can continue to enjoy this beautiful state for many years to come.”

Clemson University has been involved with water quality issues for more than 50 years through teaching, research and Extension, said George Askew, associate dean for Agriculture and Natural Resources, Public Service Activities.

“This experience working with a broad cross-section of groups, from architects and developers to local governments and the general public, provides Clemson with sound foundations to work with folks in the greater Charleston area,” Askew said.
Appendix B
Resolution Ceremony Media Release

The Ashley Cooper Stormwater Education Consortium consists of 11 community partners. The following representatives signed the joint resolution:

Berkeley County: Daniel W. Davis, supervisor and chairman of County Council
Charleston County: Timothy E. Scott, County Council chairman
Dorchester County: Larry S. Hargett, County Council chairman
City of Charleston: Mayor Joseph P. Riley Jr.
City of Folly Beach: Mayor Carl B. Beckmann Jr.
City of Hanahan: Mayor Minnie N. Blackwell
City of Isle of Palms: Mayor F. Michael Sottile
City of Lincolnville: Mayor Tyrone E. Aiken
City of North Charleston: Mayor R. Keith Summey
Town of Sullivan’s Island: Mayor Carl Smith
Town of Summerville: Mayor Pro Tem Aaron Brown

The consortium is pleased to work with the following education partners:

Clemson University CES – Carolina Clear program
S.C. Sea Grant Consortium and Extension program
S.C. Department of Natural Resources - Soil and Water Conservation Districts
S.C. Department of Natural Resources and ACE Basin NERR (National Estuarine Research Reserve) Coastal Training Program
S.C. Department of Natural Resources SCORE (S.C. Oyster Restoration and Enhancement) program
College of Charleston - Master’s of Environmental Studies program
Lowcountry Earth Force
Michaux Conservancy
Spirit of South Carolina

* Clemson University serves the state’s citizens, communities and businesses through Public Service Activities that include research, Extension and regulatory services for animal and plant health. For more information: www.clemson.edu/public/

Online resources
Carolina Clear: http://carolinaclear.clemson.edu/
National Pollutant Discharge Elimination System: http://cfpub.epa.gov/npdes/
The Clean Water Act: http://www.epa.gov/watertrain/cwa/
For more information on the Center for Watershed Excellence at Clemson University: www.clemson.edu/restoration/ecology/
For more information on EPA priority watersheds in the Southeast: www.epa.gov/region4/water/watersheds/priority.html

-MORE-
Appendix B
Resolution Ceremony Media Release

Comments from community leaders

Mayor Tyrone E. Aiken, City of Lincolnville
“Even small communities like Lincolnville must do their part to improve water quality. Through education and awareness, our citizens can also become committed to protecting natural resources and supporting stormwater management programs.”

Mayor Carl B. Beckmann Jr., City of Folly Beach
“Stormwater and stormwater control is very important to Folly Beach because we live on a barrier island. We want to do our best and our maximum to keep the water clean.”

Mayor Minnie N. Blackwell, City of Hanahan
“The City of Hanahan looks forward to working with other local units of government in the Ashley Cooper Stormwater Education Consortium. We believe that this regional approach to stormwater management will result in a better environment for our citizens. Also, we believe that our citizens will be much better informed and will, as a result, make better environmental decisions.”

Daniel W. Davis, Berkeley County supervisor and chairman of County Council
“We share a responsibility to protect our Lowcountry waterways. By working together in this effort we will send a more effective and consistent message to all our residents.”

Larry S. Hargett, Dorchester County Council chairman
“With the recent droughts, we have all been reminded that it’s our responsibility to conserve water. Equally as important as conserving water is protecting the quality of our drinking water, rivers and streams. The Ashley Cooper Stormwater Education Consortium will play a pivotal role in educating tri-county residents on how to protect our water by preventing pollution from stormwater runoff.”

Mayor Pro Tem Aaron Brown, Town of Summerville
“This collaborative effort among the counties and municipalities will benefit everyone by educating the public on the importance of stormwater quality. We appreciate Clemson’s Carolina Clear program facilitating the consortium to provide a quality and cost effective public education program, while going above and beyond the requirements of the Phase II permit.”

Mayor Joseph P. Riley Jr., City of Charleston
“We continue to learn how much each of us impacts our environment and our water quality. Stormwater runoff into our lakes, rivers and oceans is one of those issues where our individual actions make a difference. What we know now is that each one of us has a role to play in cleaning up this form of pollution.”
Timothy E. Scott, Charleston County Council chairman
“It is important to educate citizens on things they can do at home to help improve water quality. We all must contribute to the effort of keeping our swimming and fishing areas clean and free of pollution.”

Mayor Carl Smith, Town of Sullivan’s Island
“The idea of education is vital. Our marshes and wetlands are enormously important.”

Mayor F. Michael Sottile, City of Isle of Palms
“The unique environment of the City of Isle of Palms—including beaches, estuaries, marshes and the Intracoastal Waterway—makes having a regional stormwater education strategy particularly important. The city is committed to educating our citizens and visitors in order to protect our natural resources for years to come.”

Mayor R. Keith Summey, City of North Charleston
“In a community where streams, rivers and basins are so prevalent, it is of the utmost importance to educate those who work and live here about how to keep these valuable natural resources pristine. Clemson University’s Carolina Clear program and the Ashley Cooper Stormwater Education Consortium will play a vital role in the preservation of these areas so they may be enjoyed for generations to come.”

-END-
“It takes a village... to improve water quality”

Polluted stormwater runoff is the leading threat to the health of our waterways. We each have an impact on water quality in how we manage our home landscape, automobiles, boats, pets, hazardous waste, and businesses. Visit our website to learn more about how to be good watershed stewards. Internet search: “Carolina Clear”
Officials team up to help curb stormwater runoff

By Bo Petersen
The Post and Courier
Tuesday, July 29, 2008

Ashley Cooper Stormwater Education Consortium

The 11 Ashley Cooper Stormwater Education Consortium governments whose officials who will sign a joint resolution today are:

Berkeley County: Dan Davis, supervisor and County Council chairman
Charleston County: Tim Scott, County Council chairman
Dorchester County: Larry Hargett, County Council chairman
Charleston: Mayor Joe Riley
Folly Beach: Mayor Carl Beckmann Jr.
Hanahan: Mayor Minnie Blackwell
Isle of Palms: Mayor Mike Sottile
Lincolville: Mayor Tyrone Aiken
North Charleston: Mayor Keith Summey
Sullivan's Island: Mayor Carl Smith
Summerville: Mayor Pro Tem Aaron Brown

A tiny bit at a time, we are polluting our water.

Over-fertilizing the lawn, not picking up after the dog, tossing leftover motor oil in the ditch out back — wastes from such routine acts are picked up by rainfall and run through the drainage system into the streams and estuaries.

It's called stormwater runoff and it's considered one of the worst water pollution problems in developed areas. Recent state monitoring has found trouble spots of pollution in tidal creeks feeding Charleston Harbor, largely due to runoff of those wastes from roads, rooftops, parking lots and driveways.

"The little things do make a difference," said Charles Jarman, Charleston County Public Works
stormwater manager.

That's why 11 Lowcountry city or county officials today are signing a joint resolution to form the Ashley Cooper Stormwater Education Consortium, to combine efforts educating people on how to minimize their impact on the waters.

The effort is mandated by the federal Clean Water Act, part of a larger regulation of utilities that manage stormwater drainage systems. The regulation has led to water and sewer customers being charged stormwater fees. The 11 governments will contribute from $3,000 to $35,000 per year to the effort, based on their population. That money usually comes from the fees.

The sheer difficulty of trying to clean up a pollution source that flows from everywhere has made the regulations a daunting task. By pooling money, the utilities can run newspaper, radio and television ads, among other mass media spots to get the best bang for the buck.

The money might seem like a lot, said Cal Sawyer, a water-quality specialist for Clemson Extension, which will coordinate the effort. But if it helps reduce the pollution load in the runoff, it will save utilities — and their customers — the bigger cost of cleaning it up.

The consortium also will offer more-specialized programs for groups such as homeowner associations and developers on topics such as low-impact development and wetland buffers, and coordinate school programs. It will give members a sounding board for whether ideas like "pooper-scooper" ordinances will work.

"It's a fast-moving target of education, not only for the public but the regulators, too. It's invaluable to share lessons learned. We have made major steps. We have developed means and methods that we are able to clean up storm water in new developments and are implementing those controls," Jarman said. "One of the biggest things now is to get the word out to people: Do not put trash or dump into our system because they do drain to rivers, our marshes and our estuaries."

Reach <strong>Bo Petersen</strong> at 745-5852 or bpetersen@postandcourier.com.

Garden Classroom

Students volunteered Saturday at the Exchange Park in Ladson to help build part of the Carolina Yard for a new Coastal Carolina Fair exhibit that will help educate about using native plants and conserving water. The garden will be used not only for the fair but throughout the year as an educational tool in a partnership of the Exchange Club, Clemson Extension Master Gardeners, Lowcountry Earth Force and the Carolina Clear-Ashley Cooper Stormwater Education Consortium.

E-mail this gallery to a friend

Debbie Parker (left), a Goose Creek High School junior, plants native species in the rain garden section of the Carolina Yard with fellow Goose Creek Junior Tyntia Stuckey. View / Enlarge photos.

Christian Robinson (left) and Alexis Jackson, both Goose Creek High School volunteers, help build the Carolina Yard. View / Enlarge photos.

Stacey Littlefield (left) of Lowcountry Earth Force oversees students including Kasey Adams of Sedgfield Middle School as they create the educational garden exhibit. View / Enlarge photos.

West Ashley High School junior Caroline Jacques (from left) and Goose Creek High School juniors Jasmine Thower and Tyntia Stuckey hold up a cypress tree as Evergreen Concepts owner Drew Franiyo prepares the tree’s roots in the Carolina Yard exhibit at the Ladson Fairgrounds. View / Enlarge photos.

Share Your Photos

HTTP://SPOTTED.CHARLESTON.NET

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AC/DC

Q104.5
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DISTRICT PARTNERSHIPS!

CHARLESTON CONSERVATION DISTRICT JOINS
ASHLEY COOPER STORMWATER EDUCATION CONSORTIUM

The Charleston Conservation District joined with eleven local governments to protect water quality in the area. Partners in the effort, named the Ashley Cooper Stormwater Education Consortium, held a ceremony July 29th at the City Gallery in downtown Charleston’s Waterfront Park. The group gathered to adopt a resolution to address stormwater education and outreach efforts at a regional level.

Area leaders stressed the importance of water conservation, “It is important to educate citizens on the things they can do at home to help improve water quality. We all must contribute to the effort of keeping our swimming and fishing areas clean and free of pollution,” said Charleston County Council chairman, Timothy Scott. The water quality effort is headed by Clemson University’s Carolina Clean Program. It’s goal is to improve water quality through outreach to the general public, youth, construction interests, homeowners, and government officials. The Environmental Protection Agency requires that certain municipalities and counties address polluted stormwater runoff through public education. The Charleston Conservation District is one of a handful of education partners that will assist Clemson and area governments with their stormwater efforts. The Charleston District addresses stormwater through engagement of local students with poster and essay contests, scholarships, sponsorships, awards, in-class programs and educational material on water quality and natural resources.

The City of Charleston’s Mayor Joseph Riley said of the initiative, “Stormwater runoff into our lakes, rivers and oceans is one of those issues where our individual actions make a difference. What we know now is that each one of us has a role to play in cleaning up this form of pollution.”

Education Partners
- Clemson University Cooperative Extension Service - Carolina Clean program
- S.C. Sea Grant Consortium and extension program
- S.C. Department of Natural Resources - Soil and Water Conservation districts
- S.C. Department of Natural Resources and ACE Basin NERR (National Estuarine Research Reserve) Coastal Training Program
- S.C. Department of Natural Resources - SCORE (S.C. Oyster Restoration and Enhancement) program
- College of Charleston - Master’s of Environmental Studies program
- Lowcountry Earth Force
- Michaux Conservancy
- Spirit of South Carolina

Eleven Community Partners
1. Berkeley County: Daniel W. Davis, supervisor, Chairman of the County Council
2. Charleston County: Timothy E. Scott, County Council Chairman
3. Dorchester County: Larry S. Hargett, County Council Chairman
5. City of Folly Beach: Mayor Carl B. Beckmann Jr.
6. City of Hanahan: Mayor Minnie N. Blackwell
7. City of Isle of Palms: Mayor F. Mitchell Seabrook
8. City of Mount Pleasant: Mayor Tyrone E. Aiken
9. City of North Charleston: Mayor R. Keith Summey
10. Town of Sullivan’s Island: Mayor Carl Smith
11. Town of Summerville: Mayor Pro Tem Aaron Brown

Photos on this page are courtesy of Clemson University

Above, Mayor Riley spoke about the importance of stormwater for our coastal community at the July 29th press conference.
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The MES News
The Newsletter of the Master of Environmental Studies Program
The College of Charleston, South Carolina
Fall 2008

ASHLEY COOPER
STORMWATER EDUCATION CONSORTIUM

The MES Program is a partner in the newly formed Ashley Cooper Stormwater Education Consortium (ACSEC). The ACSEC is a regional collaboration of communities and education providers united in a mission to involve and educate the public about stormwater runoff - the leading cause of pollution in the nation's waterways. The ACSEC was created to coordinate and implement a regional, watershed-scale education strategy to help small municipal separate stormwater sewer system (SMS) communities address recent US Environmental Protection Agency (EPA) mandates. The ACSEC is modeled after the successful Coastal Waccamaw Stormwater Education Consortium (CWSEC) in the Myrtle Beach area, which was created in 2004. Clemson University's Carolina Clear program was one of the founding members of the CWSEC and organized the ACSEC in the Charleston region, which is the third and largest stormwater education consortium in South Carolina. MES alumnus David Joyner was hired as a natural resources agent with Clemson Extension in 2007, with the primary responsibility of coordinating the ACSEC. Joyner noted that "Stormwater runoff pollution is a collective problem that we are all a part of and likewise education is fundamental. Communities and organizations working together in a coordinated fashion provide the best way of developing and delivering that education."

So why is stormwater runoff such a big deal? Lesson #1: In most areas of the country, including all of South Carolina, stormwater sewers are separate from domestic sewer system - which means that the stormwater runoff is conveyed through pipes and ditches that drain to water bodies, not to a treatment plant. Domestic water, leaving your sinks or bathrooms, goes either to a treatment plant if you are on city water/sewer or to an on-site septic system. Stormwater runoff picks up pollutants - such as sediment, nutrients, heavy metals, oil and grease, bacteria and potential pathogens - and discharges them in water bodies, such as streams, ponds, lakes, and estuaries. Areas that are densely populated and have large amounts of impervious surfaces, such as roads, sidewalks, parking lots, and rooftops are particularly vul-

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FY 08-09 Annual Report
Ashley Cooper Stormwater Education Consortium
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The MES News

(Stormwater Education continued from page 1)

reaches more than 25% (Schueler et al., 2002). Low impact development (LID) practices, which try to improve infiltration through the use of techniques such as pervious hardscapes, rainwater harvesting and bio-retention cells, are gaining momentum to counter the problem.

This Fall, the MES Program and Clemson Extension signed a Memorandum of Understanding to support an intern annually for the ACSEC. As an MES alumnus, Joyner is uniquely familiar with how the program works and looks forward to establishing a parallel between thesis/internship requirements and the research needs of the consortium. In a recent intern, is much needed at the local level. The intern could ask questions such as: what are public perceptions concerning stormwater runoff? Do people realize that the water is not treated? In the second year, an intern may wish to devise a water monitoring system or consider the effectiveness of a "scoop the poop" campaign. Overall, the internship position would be utilized to discover current problems, find what is lacking, examine perspectives of the public and uncover possible solutions.

The second goal Joyner seeks to achieve with the new partnership is for the Clemson Extension and the MES Program to work together to highlight areas of needed research and to help establish projects for regionally applicable development. This area of the partnership may work well for students who plan to do thesis work, as the consortium still needs much research to be done in the area of science, such as the effectiveness of buffers and rain barrels, and in the area of policy, such as how communities perceive issues of stormwater runoff. The Consortium and Joyner hope that establishing these connections within the research community will help to disseminate information and extend education to the public.

The third goal Joyner and the consortium hope to accomplish with the MES Program is to use the urban campus as a living classroom by making it more stormwater runoff friendly. Joyner proposes to use the campus to showcase features that reduce stormwater runoff, such as building a rain garden or constructing a cistern to store rainwater. By implementing practices on campus, people can see for themselves the effectiveness of various methods, and awareness of stormwater runoff issues can be increased.

Both David Joyner and our program director, Dr. Fronabarger, are very excited about the newly formed partnership designed to find real solutions to the current local environmental issues of stormwater runoff, and Joyner looks forward to working with MES students ready to make a difference. The consortium is advertising for an internship position that will begin in early '09.

Contact David Joyner at djoyner@clemson.edu.
(843) 722-5940 ext. 125, or by visiting his office located at 259 Meeting Street, Charleston, SC 29401;
http://www.clemson.edu/public/carolinaclear

David Joyner with Several Rain Barrels. Rainwater: Harvesting is One of Many Ways to Reduce Stormwater Runoff. Photo: Clemson Extension

view, Joyner outlines the three main goals he hopes to achieve through this newly created partnership between the MES Program and the Ashley Cooper Stormwater Education Consortium. First, the consortium plans to offer a paid internship every year it remains in existence, as long as a suitable candidate is available. This student will be employed by the Clemson Extension and will work for the consortium. Joyner explains that there is a wide variety of project possibilities, including water quality education, forming GIS-based regional characterizations of the area, such as locations of septic tanks, concentrations of impervious surfaces, or industrial areas. For the first year, the intern could also interpret a needs assessment, as data

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Working Together To Improve the Lowcountry

As an education partner of the Ashley Cooper Stormwater Education Consortium (ACSEC), Earth Force is assisting community leaders in implementing a long-term stormwater and watershed education campaign in the Lowcountry. Organized under the direction of Clemson University’s Carolina Clear Program, ACSEC is a unique collaboration that consists of local municipalities, government agencies and non-profit organizations.

Through this partnership, Earth Force was able to implement the GREEN (Global Rivers Environmental Education Network) curriculum with teachers in Charleston, North Charleston, Berkeley County and Dorchester County. Students participating in the GREEN program are provided with water monitoring equipment to assess and improve a body of water near their school. GREEN schools also get a chance to participate in field trips offered by other education partners, such as sailboats on the Spirit of S.C. to look at water quality in the harbor.

Being involved with the ACSEC has provided Earth Force educators with new opportunities to engage their students in inventories about local watersheds and the unique issues facing our communities in managing stormwater. To date, students have participated in a variety of experiential learning activities including: the construction of rain gardens, mapping stormwater drains and looking at watershed models to evaluate potential pollutants.

PROJECT SPOTLIGHT — JI Middle’s Anti-Plastic Campaign

By Jerome

A few Saturdays ago, during the Earth Day fair in North Charleston, Heather, Jordan, and I were there with Earth Force to hand out reusable bags. Along with these bags we also told people about how harmful plastic bags are to the environment, but here’s the cool part. Along with the bags that Whole Foods gave us, we handed out over 2,000 bags! Just the three of us!

That wasn’t the only cool thing that Heather, Jordan, and I did, though. We also went out to help mark storm drains. This was fun because of the hands on action that we got to do. The jobs that each of us were given was extremely cool. Jordan and I cleaned and cleared the area that the storm drain’s marker were going to go. Then Heather placed the glue on the back of the marker. We all then pressed the marker down. This left a seal that told everyone that whatever goes into the drain goes into our waterways, so don’t pollute.

That Saturday was an out of this world experience that I will never forget, and I know Jordan and Heather won’t either!

Jerome is a student of Sandra Nichols at James Island Middle School. He has been working closely with Earth Force on a variety of projects including their anti-plastic campaign that focused on spreading the word to the Lowcountry community about the harmful effects of plastic. As part of the project, the students built a “bag hound” that consisted of over 500 plastic bags and was a representation of the average number of plastic bags the average American uses in one year! To help alleviate the use of plastic, the students participated in several community events where they gave away free reusable bags to community members. This is a great example of what Earth Force does for kids and what kids can do for their communities!

2008-2009 CAPS & GREEN Schools

Academic Magnet High
Ashley Hall
Belle Hall Elementary
Clay Hill Middle
Burke High
Charleston Day School
Florence Crittendon
Garrett Academy of Technology
Gosse Creek High
Haut Gap Middle
James Island Charter High
James Island Middle
Memminger Elementary
Northside Elementary
River Oaks Middle
Sangaree Middle
School of the Arts
Skiles Point Elementary
Stone Park Elementary
Stratford High
Summerville High
Wando High
West Ashley High
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Stormwater Education
David Joyner, Ashley Cooper Stormwater Education Consortium

Stormwater runoff is an issue that many of you have been hearing about over the last few years and there is a good reason why—it is the number one threat to the health of the nation’s waterways. So why is stormwater runoff such a big deal?

Lesson #1: In most areas of the country, including all of South Carolina, stormwater systems are separate from domestic sewer systems—meaning the stormwater runoff is conveyed through pipes and ditches that drain to water bodies, not to a treatment plant. Stormwater runoff picks up pollutants, such as sediment, nutrients, heavy metals, oil and grease, bacteria and potential pathogens, and discharges them into our surface waters. Areas that are densely populated and have large amounts of impermeable surfaces, such as roads, sidewalks, parking lots, and rooftops, are particularly vulnerable. These impermeable surfaces alter the natural hydrology, forcing a much larger percentage of the precipitation to flow off the land, rather than infiltrating into the ground. Researchers have found a relationship between impermeable surface percentage and aquatic system health. When more than 10% of the land is impermeable, water quality is negatively impacted, and becomes non-supporting when impermeable cover reaches more than 25% (Schueler et al., 2002). Low impact development (LID) practices, which try to improve infiltration through the use of techniques such as pervious landscapes and bioswetation cells, or on-site storage through rainwater harvesting, are gaining momentum to counter the problem. LID, however, is just a part of the overall strategy to reduce runoff pollution.

Stormwater runoff is often referred to as “people pollution”—it is a problem we all contribute to and likewise education is at the heart of any plan to address it. In South Carolina, regional consortia have been created in response to the EPA mandates to help coordinate regional, watershed-scale education campaigns. The consortia represent two primary groups, MS4 communities and education providers. Together, they are confronting the issues of stormwater runoff pollution through the development of education plans that target audiences and pollutants.

The Coastal Waccamaw Stormwater Education Consortium (CWSCE) in the Myrtle Beach area was the first and served as a model for two other consortia currently under way: the Ashley Cooper Stormwater Education Consortium (ACSEC) in the Charleston area, and the Lexington Countywide Stormwater Consortium (LCSC). These programs are currently working with both formal and informal educators in their regions to support water quality related education programs. Contact Karen Post (kpost@coastal.edu) for more information on the CWSCE, David Joyner (djoyner@clanton.edu) for the ACSEC, or Bill Blackstock (wbblack@clayton.edu) for the LCSC.

(continued on page 5)
The South Carolina Department of Health and Environmental Control reports 40 percent of the state’s lakes, rivers and creeks as unsafe to eat fish from or to use for swimming. The main culprit ... stormwater runoff.

Polluted runoff is the number one water quality problem not only in South Carolina but the entire country. To minimize soil erosion from development sites and other land-disturbing activities onto adjoining property and streets, the Stormwater Management and Sediment Reduction Act requires all local governments adopt plans consistent with the state stormwater plan. Key components of a successful stormwater management program are public awareness and education.

Education brings about an individual’s own call to action to change his habits and increase his environmental knowledge. The Ashley Cooper Stormwater Education Consortium, one of the state’s newest stormwater education resources, is a partnership among communities, universities, agencies and non-profits working together to implement a regional, watershed-scale stormwater runoff education strategy in the Charleston urbanized area. The effort was spearheaded in the Charleston region by Clemson University’s Carolina Clear Program and is modeled after the Coastal Waccamaw Stormwater Education Consortium. Carolina Clear was developed to inform and educate communities about water quality, water quantity and the cumulative effects of stormwater.

Participating communities include the counties of Berkeley, Charleston, and Dorchester and the municipalities of Charleston, Folly Beach, Hanahan, Isle of...
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Tips for residents

Property owners can take a major role in controlling their property's environmental impact. Those owning property on a stream or lake have an even greater responsibility to protect the water quality. Here are some steps to share with property owners to reduce stormwater pollution.

Apply fertilizer to your lawn according to the directions and only when necessary. Soil can be tested for free by the local Clemson Cooperative Extension office. The test result will tell property owners if the lawn has enough nutrients to maintain a healthy lawn.

Pick up pet waste. Pet waste contains harmful bacteria that affects drinking water and adds to potential algae blooms in lakes.

Wash cars on the lawn. Runoff that includes soap and dirt is treated naturally by the environment. Use low-phosphorus, biodegradable soaps that are less harmful to the environment.

Check cars for leaks. Leaking antifreeze and other harmful chemicals wash directly from roads and driveways to the local waterways.

Avoid over-watering lawns and gardens. Saturated soils allow excess water to carry sediments, oils, bacteria, metals and nutrients to nearby waterways.

Use pervious pavers, stone paths and other natural materials for walkways, driveways and patios. Concrete and asphalt increase your impervious footprint; where as pervious pavers allow infiltration.

Palm, Lincolnville, North Charleston, Sullivan’s Island and Summerville. Education partners with Carolina Clear include SC Sea Grant Consortium and Extension, College of Charleston—MES Program, SC Department of Natural Resources, Lowcountry Earth Force, Michaux Conservancy and the Spirit of South Carolina.

The ACSEC provides an opportunity for organizations to pool their resources and efforts to become a driving force for addressing the importance of natural resources and water quality, according to David Joyner, ACSEC program coordinator.

“The ACSEC and similar consortia provide people with the specific tools and manuals to make a difference in stormwater pollution. It is one thing to tell people to not use too much fertilizer and build a rain garden. We are here to give the specifics and to illustrate how individual actions impact the area as a whole,” said Joyner. “As we begin our efforts, we are taking a baseline of the area’s current perceptions, behaviors and demographics. We will use this material to connect the dots between an individual’s actions and their values. The importance of quality water resources hits home when it touches on personal hobbies and values.”

ACSEC is educating the public through a targeted audience – target pollutant plan. An example would be pet waste. ACSEC addresses the target audience of pet owners to educate the group about the damaging effect of bacteria from pet waste in stormwater. To ensure proper receptacles are available through the parks and recreation department, target land use becomes part of the education plan.

The target audiences for the first year include the general public, elected and appointed officials, contractors, engineers, developers, public works employees, teachers and youth, coastal resource managers and homeowners.

The ACSEC message will be reaching the target audiences by using mass media (television, radio, newspapers and billboard), workshops, training programs, seminars and its Web site.

The Ashley Cooper Stormwater Education Consortium’s mission is to improve water quality within the Ashley and Cooper River basins by providing educational opportunities on stormwater impacts and our community roles in supporting healthy, frugal, and swimmable waterways. “Stormwater pollution is too complex of a problem for one organization to address. For us to have an impact on the issue, it has to be a collaborative effort,” said Joyner.

Joyner spoke on the topic of public education and stormwater management to the SC Association of Stormwater Managers during its meeting in March. For more information about the stormwater education consortium and Carolina Clear, visit http://www.clemson.edu/public/carolinaclear.
Appendix C
Articles and Advertisements

Not your average water feature
By Peter Hull

Scientists at the Baruch Institute of Coastal Ecology and Forest Science in Georgetown want to protect future developments from the risks of flooding.

Biologists Ken Hail and Dan Hitchcock are documenting what pre-development hydrologic conditions exist in coastal watersheds — in this case, the historic Barlow Burnt Plantation between U.S. Hwy 17 and the Atlantic Ocean.

Their mission is simple: Control stormwater runoff as if the bulldozers had never moved in. To that end, they have built and installed three 10-feet long by 2-feet wide water flumes that will provide the telltale data.

By knowing the exact dimensions of the flume they can determine how much water passes through it, and what bacteria and sediment are in the water. If the site one day becomes homes or businesses, their research into water flow could prevent those structures from flooding.

For more information: Anand Jayakaran, 843-546-1013, ext. 223 or ajayakaran@clemson.edu; Dan Hitchcock, 843-546-1013, ext. 236, or dhitchco@clemson.edu or www.clemson.edu/baruch.

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Local communities join to tackle stormwater
By Peter Hull

Communities across the Charleston region have joined with Clemson University’s Carolina Clear program to tackle stormwater issues and protect area water quality.

Representatives from 11 local governments signed a joint resolution to adopt a regional stormwater runoff education strategy through the Ashley Cooper Stormwater Education Consortium.

The consortium, a partnership between communities and educators from universities, state agencies and nonprofits, is the third largest regional collaboration to date in the Carolina Clean program. It follows similar efforts along the Grand Strand and in the Midlands.

Clemson Impact • Fall 2008

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Hunting generates income
By Peter Hull

Rural residents are often land-rich and cash-strapped but Clemson forestry and natural resources scientists have identified a potential income source.

Hunting on private lands is a major recreational activity in rural areas of the state. Researchers David Gwynn and Greg Yarrow conducted surveys to measure landowner-hunter arrangements and the economic impact of hunting on local businesses.

Data from the last survey estimates that the total in-county private land hunter expenditures were more than $6 million in Jasper County and more than $4 million in McCormick County.

This research shows that leasing hunting rights can provide landowners a way to prosper without having to sell increasingly scarce large holdings. In addition, hunting helps communities by supporting businesses in rural counties.

For more information: David Gwynn, 843-772-5940, ext. 125; dgwynn@clemson.edu or http://carolinaclear.clemson.edu/
Appendix C
Articles and Advertisements

As environments change, life seeks to fit in
By Peter Kent

Weather patterns and the consequences of wind, rain and temperature profoundly influence life on Earth. Historical biogeographer Peter Marko studies how past changes in climate have impacted species' distribution and abundance. The research shows patterns that can help scientists predict how plant and animal life may respond to global warming.

"Climate change has received the most attention from biologists and paleontologists as a factor affecting ecosystems over geological timescales," Marko said. "There is a growing desire to predict the responses of marine species to increasing global temperatures. Over the span of time, species retain genetic information that tracks how they survived in their environments. I examine these ages-old genetic patterns -- think of it as genetic archeology."

Research by Marko and others offers insights into the long-term consequences of climate change. It also provides data for political and economic decisions about land-use, conservation and environmental policies, such as coastal growth and development.

For more information: Peter Marko, 864-656-1426, pmarko@clemson.edu.

Water conference addresses economic impact for state
By Peter Hull

Policy makers and industry leaders gathered at the Charleston Area Convention Center in October for the 2008 S.C. Water Resources Conference.

The two-day conference was organized by the Clemson University Restoration Institute and planned by a group of 13 universities, governmental agencies and industries. More than 350 participants attended 30 concurrent sessions on water quality, conservation, public policy, future needs, land-use planning and economic development.

Speakers included representatives from the state's universities, federal and state agencies, environmental engineering consultants and municipalities. Attorney General Henry McMaster gave the keynote address on the impact of water issues facing South Carolina.

"This conference was about more than water. The issues discussed here affect our quality of life and the economic vitality of South Carolina," said Gene Eidson, Restoration Institute ecology program director and conference chairman.

For more information: Gene Eidson, 864-710-0882, gedson@clemson.edu.

Saving a rainy day
By Peter Hull

Save money and water: make a rain barrel.

"Now more than ever, the use of rain barrels is an important consideration and wise investment for homeowners across South Carolina," said Katie Giacalone, Carolina Clear natural resources coordinator.

Rain barrels reuse rainwater to irrigate gardens and lawns. They also help keep stormwater away from a home's foundation and out of the storm drains, ditches and rivers.

Commercial rain barrels sell for about $150, but Charleston County Extension agent Dave Joyner showed a class of Master Gardeners how to make a rain barrel for less than $50. The volunteer gardeners can now conduct classes for the public to encourage water conservation.

"Most people are surprised at the amount of water that comes off their roof," Joyner said. "One inch of rainfall over a 1,000-square-foot roof yields more than 500 gallons of water. The average rainfall in the coastal region is about 50 inches per year."

For more information: David Joyner, 843-722-5940 x 125, djoyer@clemson.edu.
Appendix C
Articles and Advertisements

Landscaping with the environment, not against it
By Peter Hull

Visitors to the 2008 Coastal Carolina Fair in Ladsaw experienced a new attraction: how to create yards that work with the environment, not against it.

Master Gardeners, helped by more than a dozen volunteers from local schools, built an outdoor classroom where visitors learn how to be more environmentally conscious in their yards.

The living exhibit, part of Clemson Extension’s Carolina Yards and Neighborhoods program, serves as a permanent demonstration area for workshops that include landscape water management and the use of native plant species.

The project was a partnership between Clemson Extension’s Master Gardeners program, Ladsaw Exchange Fair/Exchange Club and the Ashley-Cooer Stormwater Education Consortium sponsored by Clemson Carolina Clear.

“The demonstration project will be more than a regular attraction at the annual fair,” said David Joyner, Charleston County Extension agent. “It will be used as an outdoor classroom for area schools and other groups throughout the year.”

For more information: David Joyner, 843-722-5940 125, djoyner@clemson.edu or www.clemson.edu.

“We all live downstream” the message from Carolina Clear campaign
By Peter Hull

Clemson’s stormwater education and awareness program, Carolina Clear, rolled out its first multimedia advertising campaign in November.

Television and radio commercials, and seven billboards across two coastal regions, carry a simple message: “Remember, we all live downstream.” The campaign debuted in the Charleston and Myrtle Beach markets before appearing in other regions of the state.

Carolina Clear’s goal is to minimize polluted stormwater runoff by educating the general public, youth, business developers, homeowners and government officials about how they can keep water in the state’s streams, rivers and basins as clean as possible.

“It is everyone’s responsibility from local governments to the general public, to keep surface waters free of pollution. Stormwater pollution is people pollution, and we all can play a role in keeping South Carolina’s waters clean, drinkable and swimmable for the next generation,” said Katie Guscione, Carolina Clear’s statewide coordinator.

For more information: www.clemson.edu/public/carc-linaclear or Katie Guscione, 843-554-7236 x 115, kguscione@clemson.edu.

Mercury: It’s not good for fish or fishermen
By Peter Kent

Some fish caught in South Carolina may not be safe to eat because they contain harmful levels of chemicals that cause health problems, especially for children and pregnant women.

Environmental chemist Beth Carnaway studies how mercury moves through stream and river environments. Organic sediment, such as leaves and grasses, can remove some of the chemical from water. However, certain bacteria can transform mercury into methylmercury that builds up in insects and fish, magnifying the health risks.

“We need to identify how mercury gets into the water and where it poses the greatest concern,” said Carnaway. “With this information we can make better predictions about exposure levels to people and better choices about how to reduce mercury levels.”

Burning coal, other fossil fuels, and even trash – as well as factory smokestacks – can increase the mercury in the air. The metal returns to the earth in rain and ends up in lakes and rivers. The U.S. Geological Service reports that the Southeast in general and the Santee area in particular show above average methylmercury levels.

For more information: Elizabeth Carnaway, 864-646-2189, carnaw@clcmson.edu.
### Appendix D

**Hazardous Household Material Disposal Event Data**

Breakdown of disposed HHMs by Charleston County

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**Data Breakdown**

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- **Batteries - car**: 0
- **Batteries - Ni-Cds**: 0
- **Batteries - Alkaline**: 0
- **Battery Acid**: 0
- **Cleaners**: 0
- **Compounds**: 0
- **E-Waste (picoccs)**: 0
- **Flammables**: 0
- **Florescent (bulbs)**: 0
- **Gas Cylinders**: 0
- **Glues**: 0
- **Latex Paint (Can)**: 0
- **Latex Paint (5gal)**: 0
- **Oil paint (can)**: 0
- **Oil Paint (5gal)**: 0
- **Oil Filters**: 0
- **Pesticides**: 0
- **Tires**: 0